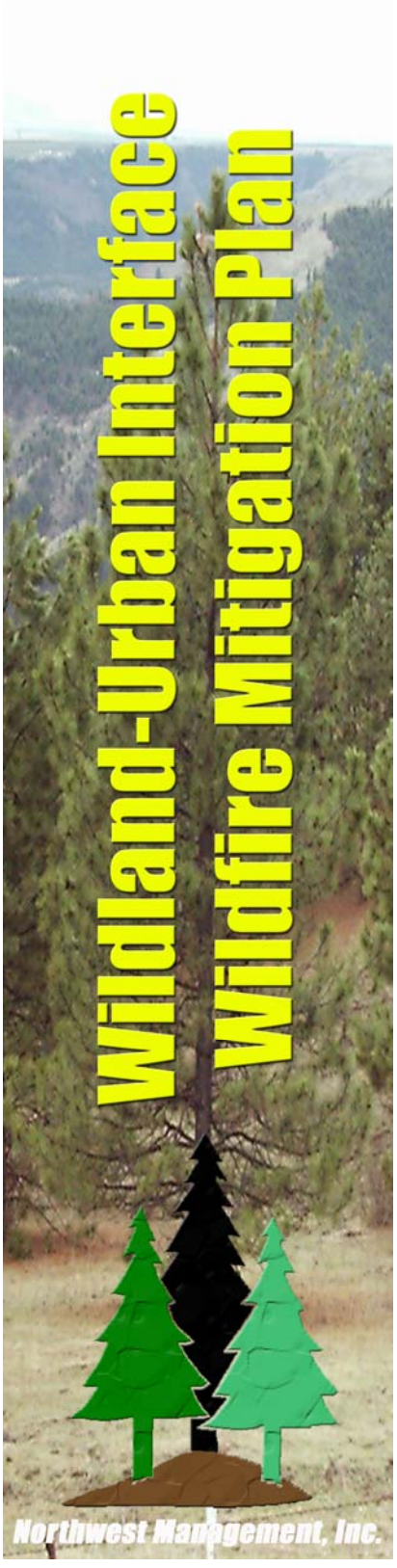

Nez Perce County, Idaho, Wildland-Urban Interface Wildfire Mitigation Plan

Main Document

March 28, 2005

Vision: *Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Nez Perce County.*

This plan was developed by the Nez Perce County Wildland-Urban Interface Wildfire Mitigation Plan Committee in cooperation with Northwest Management, Inc., 233 E. Palouse River Dr., P.O. Box 9748, Moscow, ID 83843, Tel: 208-883-4488, www.Consulting-Foresters.com

Acknowledgments

This Wildland-Urban Interface Wildfire Mitigation Plan represents the efforts and cooperation of a number of organizations and agencies, through the commitment of people working together to improve the preparedness for wildfire events while reducing factors of risk.

Nez Perce County Commissioners
and the employees of Nez Perce County

Clearwater Resource Conservation and
Development Council

USDI Bureau of Land Management

USDA Forest Service

Idaho Bureau of Homeland Security

Federal Emergency Management Agency

Big Canyon Rural Fire Department
Sunnyside Rural Fire Department
Genesee Rural Fire Department
Nez Perce County Fire Department
Lewiston Fire Department
Culdesac Fire Department
Clearwater Fire Service
&
Local Businesses and
Citizens of Nez Perce County

Idaho Department of Lands

To obtain copies of this plan contact:

Nez Perce County Commissioners Office
Nez Perce County Courthouse
1230 Main Street
Lewiston, Idaho 83501

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Chapter I: Overview of this Plan and its Development

1 Introduction

This Wildland-Urban Interface Wildland Fire Mitigation Plan for Nez Perce County, Idaho, is the result of analyses, professional cooperation and collaboration, assessments of wildfire risks and other factors considered with the intent to reduce the potential for wildfires to threaten people, structures, infrastructure, and unique ecosystems in Nez Perce County, Idaho. The planning team responsible for implementing this project was led by the Nez Perce County Commissioners. Agencies and organizations that participated in the planning process included:

- USDI Bureau of Land Management
- Clearwater Resource Conservation and Development Council
- Idaho Department of Lands
- Nez Perce Tribe
- Potlatch Corporation
- Nez Perce County Planning and Zoning
- Nez Perce County Emergency Management
- Big Canyon Rural Fire District
- Sunnyside Rural Fire District
- Genesee Rural Fire District
- Lapwai Fire Department
- Lewiston Fire Department
- Culdesac Fire Department
- Nez Perce County Fire Department
- Clearwater Fire Service
- Northwest Management, Inc.

The Clearwater Resource Conservation and Development Council, Inc., solicited competitive bids from companies to provide the service of leading the assessment and the writing of the **Nez Perce County Wildland-Urban Interface Wildland Fire Mitigation Plan**. The Clearwater Resource Conservation and Development Council, Inc., selected Northwest Management, Inc., to provide this service. Northwest Management, Inc., is a professional natural resources consulting firm located in Moscow, Idaho. Established in 1984 NMI provides natural resource management services across the USA. The Project Manager from Northwest Management, Inc. was Dr. William E. Schlosser, a professional forester and regional planner.

1.1 Goals and Guiding Principles

1.1.1 Federal Emergency Management Agency Philosophy

Effective November 1, 2004, a Local Hazard Mitigation Plan approved by the Federal Emergency Management Agency (FEMA) is required for Hazard Mitigation Grant Program

(HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM program provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The new local hazard mitigation plan requirements for HMGP and PDM eligibility is based on the Disaster Mitigation Act of 2000, which amended the Stafford Disaster Relief Act to promote and integrated, cost effective approach to mitigation. Local hazard mitigation plans must meet the minimum requirements of the Stafford Act-Section 322, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria covers the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

FEMA will only review a local hazard mitigation plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local hazard mitigation plans will not be reviewed by FEMA. FEMA will review the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will be unable to approve it prior to adoption. In Idaho the SHMO is:

Idaho Bureau of Disaster Services
4040 Guard Street, Bldg 600
Boise, ID 83705
Jonathan Perry, 208-334-2336 Ext. 271

A FEMA designed plan will be evaluated on its adherence to a variety of criteria.

- Adoption by the Local Governing Body
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-Jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures
- Multi-Jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation Through Existing Programs
- Continued Public Involvement

1.1.2 Additional State and Federal Guidelines Adopted

The Wildland-Urban Interface Wildfire Mitigation Plan component of this All Hazards Mitigation Plan will include compatibility with FEMA requirements while also adhering to the guidelines proposed in the National Fire Plan, the Idaho Statewide Implementation Plan, and the Healthy Forests Restoration Act (2004). This Wildland-Urban Interface Wildland Fire Mitigation Plan has been prepared in compliance with:

- The National Fire Plan; A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan–May 2002.

- The Idaho Statewide Implementation Strategy for the National Fire Plan–July 2002.
- Healthy Forests Restoration Act (2004)
- The Federal Emergency Management Agency's Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Natural Hazards Mitigation Plan.

"When implemented, the 10-Year Comprehensive Strategy will contribute to reducing the risks of wildfire to communities and the environment by building collaboration at all levels of government."
- The NFP 10-Year Comprehensive Strategy August 2001

The objective of combining these four complimentary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Nez Perce County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

1.1.2.1 National Fire Plan

The goals of this Wildland-Urban Interface Fire Mitigation Plan include:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Its three guiding principles are:

1. Priority setting that emphasizes the protection of communities and other high-priority watersheds at-risk.
2. Collaboration among governments and broadly representative stakeholders
3. Accountability through performance measures and monitoring for results.

This Wildland-Urban Interface Fire Mitigation Plan fulfills the National Fire Plan's 10-Year Comprehensive Strategy and the Idaho Statewide Implementation Strategy for the National Fire Plan. The projects and activities recommended under this plan are in addition to other Federal, state, and private / corporate forest and rangeland management activities. The implementation plan does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of participating Federal, State, and tribal agencies.

By endorsing this implementation plan, all signed parties agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, and local governments.

- A unified effort to implement the collaborative framework called for in the Strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.
- The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives.

The National Fire Plan identifies a three-tiered organization structure including 1) the local level, 2) state/regional and tribal level, and 3) the national level. This plan adheres to the collaboration and outcomes consistent with a local level plan. Local level collaboration involves participants with direct responsibility for management decisions affecting public and/or private land and resources, fire protection responsibilities, or good working knowledge and interest in local resources. Participants in this planning process include Tribal representatives, local representatives from Federal and State agencies, local governments, landowners and other stakeholders, and community-based groups with a demonstrated commitment to achieving the strategy's four goals. Existing resource advisory committees, watershed councils, or other collaborative entities may serve to achieve coordination at this level. Local involvement, expected to be broadly representative, is a primary source of planning, project prioritization, and resource allocation and coordination at the local level. The role of the private citizen is not to be under estimated, as their input and contribution to all phases of risk assessments, mitigation activities, and project implementation is greatly facilitated by their involvement.

1.1.2.2 Idaho Statewide Implementation Strategy

The Strategy adopted by the State of Idaho is to provide a framework for an organized and coordinated approach to the implementation of the National Fire Plan, specifically the national "10-Year Comprehensive Strategy Implementation Plan".

Emphasis is on a collaborative approach at the following levels:

- County
- State

Within the State of Idaho, the Counties, with the assistance of State and Federal agencies and local expert advice, will develop a risk assessment and mitigation plan to identify local vulnerabilities to wildland fire. A Statewide group will provide oversight and prioritization as needed on a statewide scale.

This strategy is not intended to circumvent any work done to date and individual Counties should not delay implementing any National Fire Plan projects to develop this county plan.

Rather, Counties are encouraged to identify priority needs quickly and begin whatever actions necessary to mitigate those vulnerabilities.

It is recognized that implementation activities such as; hazardous fuel treatment, equipment purchases, training, home owner education, community wildland fire mitigation planning, and other activities, will be occurring concurrently with this County wide planning effort.

1.1.2.2.1 County Wildland Fire Interagency Group

Each County within the state has been requested to write a Wildland Fire Mitigation Plan. These plans should contain at least the following five elements:

1) Documentation of the process used to develop the mitigation plan. How the plan was developed, who was involved and how the public was involved.
2) A risk assessment to identify vulnerabilities to wildfire in the wildland-urban interface (WUI).
3) A prioritized mitigation strategy that addresses each of the risks. Examples of these strategies could be: training for fire departments, public education, hazardous fuel treatments, equipment, communications, additional planning, new facilities, infrastructure improvements, code and/or ordinance revision, volunteer efforts, evacuation plans, etc.
4) A process for maintenance of the plan which will include monitoring and evaluation of mitigation activities
5) Documentation that the plan has been formally adopted by the involved agencies. Basically a signature page of all involved officials.

This five-element plan is an abbreviated version of the FEMA mitigation plan and will begin to meet the requirements for that plan. To develop these plans each county should bring together the following individuals, as appropriate for each county, to make up the County Wildland Fire Interagency Group. It is important that this group has representation from agencies with wildland fire suppression responsibilities:

- County Commissioners (Lead)
- Local Fire Chiefs
- Idaho Department of Lands representative
- USDA Forest Service representative
- USDI Bureau of Land Management representative
- US Fish and Wildlife representative
- Bureau of Indian Affairs
- Local Tribal leaders
- Bureau of Disaster Services
- LEPC Chairperson
- Resource Conservation and Development representative
- State Fish and Game representative
- Interested citizens and community leaders as appropriate

- Other officials as appropriate

Role of Resource Conservation and Development Councils (RC&D): If requested by the County Commissioners, the local RC&D's may be available to assist the County Commissioners in evaluating each County within their council area to determine if there is a wildland fire mitigation plan in place, or if a plan is currently in the development phase. If no plan is in place, the RC&D's, if requested, could be available to assist the Commissioners with the formation of the County Wildland Fire Interagency Group and/or to facilitate the development of wildland fire mitigation plan.

If a plan has been previously completed, the Commissioners will determine if the recommended five elements have been addressed. The Counties will provide a copy of the completed mitigation plan to the Idaho Department of Lands National Fire Plan Coordinator, which will include a contact list of individuals that developed the plan.

1.1.2.3 National Association of State Foresters

1.1.2.3.1 Identifying and Prioritizing Communities at Risk

This plan is written with the intent to provide the information necessary for decision makers (elected officials) to make informed decisions in order to prioritize projects across the entire county. These decisions may be made from within the council of Commissioners, or through the recommendations of ad hoc groups tasked with making prioritized lists of projects. It is not necessary to rank projects numerically, although that is one approach, rather it may be possible to rank them categorically (high priority set, medium priority set, and so forth) and still accomplish the goals and objectives set forth in this planning document.

The following was prepared by the National Association of State Foresters (NASF), June 27, 2003, and is included here as a reference for the identification of prioritizing treatments between communities.

Purpose: To provide national, uniform guidance for implementing the provisions of the "Collaborative Fuels Treatment" MOU, and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

Intent: The intent is to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the state and regional level. Three basic premises are:

- Include all lands and all ownerships.
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders.
- Set priorities by evaluating projects, not by ranking communities.

The National Association of State Foresters (NASF) set forth the following guidelines in the Final Draft Concept Paper; Communities at Risk, December 2, 2002.

Task: Develop a definition for "communities at risk" and a process for prioritizing them, per the Implementation Plan for the 10-Year Comprehensive Strategy (Goal 4.e.). In addition, this definition will form the foundation for the NASF commitment to annually identify priority fuels reduction and ecosystem restoration projects in the proposed MOU with the federal agencies (section C.2 (b)).

1.1.2.3.2 Conceptual Approach

1. NASF fully supports the definition of the Wildland Urban Interface (WUI) previously published in the Federal Register. Further, proximity to federal lands should not be a consideration. The WUI is a set of conditions that exists on, or near, areas of wildland fuels nation-wide, regardless of land ownership.
2. Communities at risk (or, alternately, landscapes of similar risk) should be identified on a state-by-state basis with the involvement of all agencies with wildland fire protection responsibilities: state, local, tribal, and federal.
3. It is neither reasonable nor feasible to attempt to prioritize communities on a rank order basis. Rather, communities (or landscapes) should be sorted into three, broad categories or zones of risk: high, medium, and low. Each state, in collaboration with its local partners, will develop the specific criteria it will use to sort communities or landscapes into the three categories. NASF recommends using the publication "Wildland/Urban Interface Fire Hazard Assessment Methodology" developed by the National Wildland/Urban Interface Fire Protection Program (circa 1998) as a reference guide. (This program, which has since evolved into the Firewise Program, is under the oversight of the National Wildfire Coordinating Group (NWCG)). At minimum, states should consider the following factors when assessing the relative degree of exposure each community (landscape) faces.
    - **Risk:** Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition.
    - **Hazard:** Assess the fuel conditions surrounding the community using a methodology such as fire condition class, or [other] process.
    - **Values Protected:** Evaluate the human values associated with the community or landscape, such as homes, businesses, and community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, and high value commercial timber lands).
    - **Protection Capabilities:** Assess the wildland fire protection capabilities of the agencies and local fire departments with jurisdiction.
4. Prioritize by project not by community. Annually prioritize projects within each state using the collaborative process defined in the national, interagency MOU "For the Development of a Collaborative Fuels Treatment Program". Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape. This will require:
    - First, focus on the zone of highest overall risk but consider projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
    - Second, determining the community's willingness and readiness to actively participate in an identified project.
    - Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.

- Last, set priorities by looking for projects that best meet the three criteria above. It is important to note that projects with the greatest potential to reduce risk to communities and the landscape may not be those in the highest risk zone, particularly if either the community or the surrounding landowner is not willing or able to actively participate.

5. It is important, and necessary, that we be able to demonstrate a level of accomplishment that justifies to Congress the value of continuing the current level of appropriations for the National Fire Plan. Although appealing to appropriators and others, it is not likely that many communities (if any) will ever be removed from the list of communities at risk. Even after treatment, all communities will remain at some, albeit reduced, level of risk. However, by using a science-based system for measuring relative risk, we can likely show that, after treatment (or a series of treatments), communities are at "*reduced risk*".

Similarly, scattered, individual homes that complete projects to create defensible space could be "counted" as "households at reduced risk". This would be a way to report progress in reducing risk to scattered homes in areas of low priority for large-scale fuels treatment projects.

Using the concept described above, the NASF believes it is possible to accurately assess the relative risk that communities face from wildland fire. Recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, assessments and re-assessments must be done on a state-by-state basis, using a process that allows for the integration of local knowledge, conditions, and circumstances, with science-based national guidelines. We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

Further, it is essential that both the assessment process and the prioritization of projects be done collaboratively, with all local agencies with fire protection jurisdiction – federal, state, local, and tribal – taking an active role.

1.1.2.4 Healthy Forests Restoration Act

On December 3, 2003, President Bush signed into law the Healthy Forests Restoration Act of 2003 to reduce the threat of destructive wildfires while upholding environmental standards and encouraging early public input during review and planning processes. The legislation is based on sound science and helps further the President's Healthy Forests Initiative pledge to care for America's forests and rangelands, reduce the risk of catastrophic fire to communities, help save the lives of firefighters and citizens, and protect threatened and endangered species.

Among other things the Healthy Forests Restoration Act (HFRA):

- Strengthens public participation in developing high priority projects;
- Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
- Creates a pre-decisional objections process encouraging early public participation in project planning; and
- Issues clear guidance for court action challenging HFRA projects.

The Nez Perce County Wildland-Urban Interface Wildfire Mitigation Plan is developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy document which should assist the federal land management agencies (US Forest Service and Bureau of Land Management) with implementing wildfire mitigation projects in Nez Perce

County that incorporate public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

1.1.3 Local Guidelines and Integration with Other Efforts

1.1.3.1 Nez Perce County Comprehensive Growth and Development Plan

The Nez Perce County Comprehensive Growth and Development Plan (December 7, 1998) is a guide that establishes goals and objectives to help the County grow and develop. The Nez Perce County Comprehensive Plan includes a forecast of conditions that are anticipated to occur within the next twenty-five-year period, 1998 to 2023. The Plan addresses and includes all 14 comprehensive planning components of the "Idaho Local Planning Act of 1975" as supplemented and amended.

Planning is an ongoing process. Conditions and priorities change; consequently the plan will be reviewed regularly and revised when necessary. The 14 planning components included in the Nez Perce County Comprehensive Growth and Development Plan include:

1. Population
2. Private Property Rights
3. School Facilities and Transportation
4. Economic Development
5. Land Use
6. Transportation
7. Public Services, Facilities, and Utilities
8. Housing
9. Recreation and Tourism
10. Natural Resources
11. Hazardous Areas
12. Special Areas or Sites
13. Community Design
14. Implementation

Within each chapter of the comprehensive plan are goals and objectives, which help establish development guidelines and public policy. Goals are defined as statements, which indicate a general aim or purpose to be achieved. Goals reflect countywide values. Objectives are defined as guidelines, which establish a definite course to guide present and future decisions. The Nez Perce County Comprehensive Plan is directed toward all land within the County including Federal, State, Public and Private lands.

This Wildland-Urban Interface Wildfire Mitigation Plan will “dove-tail” with the County’s Comprehensive Plan during its development and implementation to insure that the goals and objectives of each are integrated together. In many sections of this document, direct reference will be made to specific recommendations that are amplified or enhanced in this document. This planning effort fully adopts the goals and objectives of the County’s Comprehensive Plan.

1.1.3.2 Nez Perce County Fire Mitigation Planning Effort and Philosophy

The goals of this planning process include the integration of the National Fire Plan, the Idaho Statewide Implementation Strategy, the Healthy Forests Restoration Act, and the requirements of FEMA for a county-wide Fire Mitigation Plan; a component of the County's All Hazards Mitigation Plan. This effort will utilize the best and most appropriate science from all partners, the integration of local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens, the regional economy, the significance of this region to the rest of Idaho and the Inland West.

1.1.3.2.1 Mission Statement

To make Nez Perce County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of wildland fires through the effective administration of wildfire hazard mitigation grant programs, hazard risk assessments, wise and efficient fuels treatments, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.

1.1.3.2.2 Vision Statement

Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Nez Perce County.

1.1.3.2.3 Goals

- To reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
- Prioritize the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
- Establish mitigation priorities and develop mitigation strategies in Nez Perce County
- Strategically locate and plan fuel reduction projects
- Provide recommendations for alternative treatment methods, such as modifying forest stand density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated slash
- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Fire Mitigation Plan

Chapter 2: Planning Process

2 Documenting the Planning Process

Documentation of the planning process, including public involvement, is required to meet FEMA's DMA 2000 (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop this plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

2.1 Description of the Planning Process

The Nez Perce County Wildland-Urban Interface Wildfire Mitigation Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Section 1.0 of this document. The County's local coordinator contacted these organizations directly to invite their participation and schedule meetings of the planning committee. The planning process included 5 distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed though out the process):

1. **Collection of Data** about the extent and periodicity of wildfires in and around Nez Perce County. This included an area encompassing Latah, Clearwater, Idaho, and Lewis Counties to insure a robust dataset for making inferences about fires in Nez Perce County specifically; this included a wildfire extent and ignition profile.
2. **Field Observations and Estimations** about wildfire risks including fuels assessments, juxtaposition of structures and infrastructure to wildland fuels, access, and potential treatments by trained wildfire specialists.
3. **Mapping** of data relevant to wildfire control and treatments, structures, resource values, infrastructure, fire prone landscapes, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee, to a public mail survey, news releases, public meetings, public review of draft documents, and acceptance of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, providing ample review and integration of committee and public input, followed by acceptance of the final document.

Planning efforts were led by the Project Director, Dr. William E. Schlosser, of Northwest Management, Inc. Dr. Schlosser holds 4 degrees in natural resource management (A.S. geology; B.S. forest and range management; M.S. natural resource economic & finance; Ph.D. environmental science and regional planning). President of Northwest Management, Inc., Mr. Vincent Corrao, holds two degrees in natural resource management (A.S. forest management and B.S. forest resource management). Together, they led a team of resource professionals that included fire mitigation specialists, wildfire control specialists, resource management professionals, and hazard mitigation experts.

They were the point-people for team members to share data and information with during the plan's development. They and the planning team met with many residents of the county during the inspections of communities, infrastructure, and hazard abatement assessments. This methodology, when coupled with the other approaches in this process, worked effectively to integrate a wide spectrum of observations and interpretations about the project.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal and state agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between cooperators.

When the public meetings were held, many of the committee members were in attendance and shared their support and experiences with the planning process and their interpretations of the results.

2.2 Public Involvement

Public involvement in this plan was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning process.

2.2.1 News Releases

Under the auspices of the Nez Perce County Wildland-Urban Interface Wildfire Mitigation Planning Committee, news releases were submitted to area newspapers.

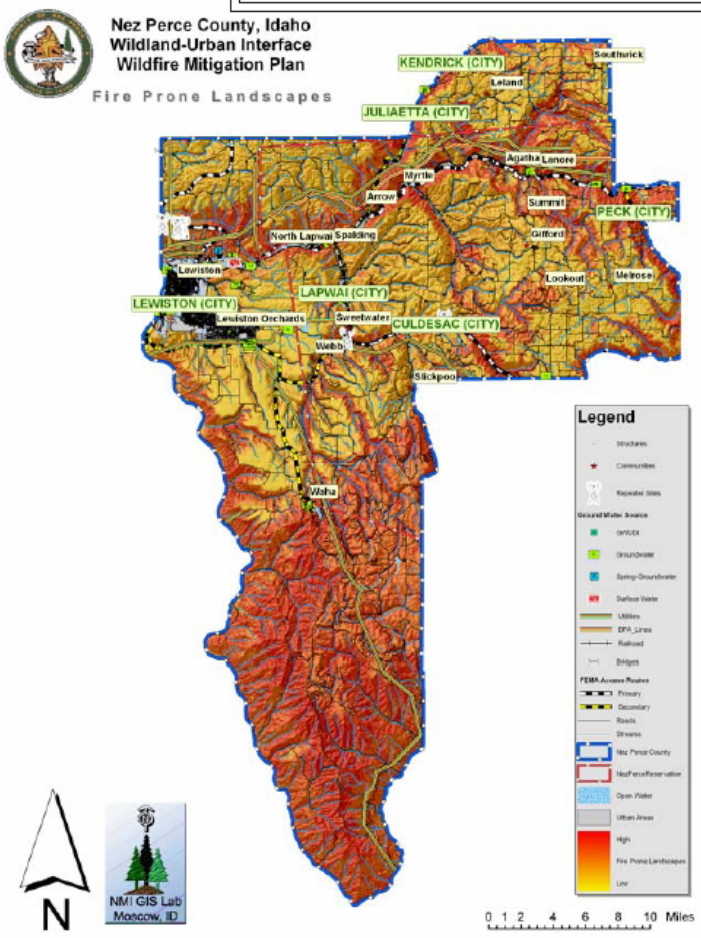
Nez Perce County, Idaho
Wildfire
Mitigation Plan
Public Meetings!

Lewiston: February 8, 2005, Lewiston Community Center, 1424 Main St., 7:00 – 9:00 pm.
Lapwai: February 9, 2005, Lapwai City Hall, 315 Main St., 7:00 – 9:00 pm.
Myrtle Beach: February 10, 2005, Fish & Game Building, Highway 12 between Arrow and Cherrylane, 7:00–9:00 pm.

These public meetings will address the **Wildfire Mitigation Plan** for our communities. These meetings are open to the public and will include slideshow presentations from hazard mitigation specialists working on the Nez Perce County Wildfire Mitigation Plan. Public input is being sought in order to better frame the County's efforts of hazard mitigation treatments, fire district resource enhancements, and public land management.

This meeting will last for approximately 1.5 hours.

Please attend and participate!



Discuss ***YOUR*** priorities for how our communities can best mitigate these risks.

These meetings will last for approximately 1.5 hours and include refreshments, a slideshow, information on the planning process, and schedules for completion. ***We want your input.***

Topics of discussion include:

- Wildfirfes
- Fire Fighting Resources
- Fire Districts
- Infrastructure
- Fuels Treatments

For more information on Hazard Mitigation Plan projects in Nez Perce County, contact your County Commissioners, Dan Pierce at the Clearwater RC&D office at 208-882-4960 ext. 4, or William E. Schlosser at the Northwest Management, Inc., office in Moscow at 208-883-4488.

We'll see you there!

2.2.1.1 Newspaper Articles

Committee and public meeting announcements were published in the Lewiston Morning Tribune ahead of each meeting. The following is an example of one of the newspaper announcements that ran in the local newspaper.

Nez Perce County Wildfire Mitigation Plan

Lewiston, ID --- The Nez Perce County Commissioners, have created a Wildfire Mitigation Plan Committee to complete a Wildfire Mitigation Plan for Nez Perce County. The Nez Perce County Wildfire Mitigation Plan will include risk analysis at the community level for wildfires that threaten our homes and communities. Northwest Management, Inc., a local firm, has been retained by the Clearwater Resource Conservation and Development Council, Inc., to provide risk assessments, mapping, field inspections, interviews, and to collaborate with the committee to prepare the plan.

The committee includes rural and wildland fire districts, land managers, elected officials, agency representatives, and others. Northwest Management specialists are conducting analyses of risk profiling and developing mitigation strategies. Specific mitigation activities for homes, structures, infrastructure, and resource capabilities will be proposed as part of the analysis.

The planning team will be conducting four public meetings to discuss preliminary findings and to seek public involvement in the planning process from February 8-10, 2005. For more information on the Wildfire Mitigation Plan project in Nez Perce County contact your County Commissioners, Dan Pierce at the Clearwater Resource Conservation and Development Council, Inc., office at 208-882-4960 ext. 4, or William E. Schlosser at the Northwest Management, Inc., office in Moscow at 208-883-4488.

Everyone interested in these meetings is encouraged to attend and join in the discussions!

Public Information Meetings:

Lewiston: February 8, 2005, Lewiston Community Center,
1424 Main St., 7:00 – 9:00 pm.
Lapwai: February 9, 2005, Lapwai City Hall,
315 Main St., 7:00 – 9:00 pm.
Myrtle Beach: February 10, 2005, Fish & Game Building
Highway 12 between Arrow and Cherrylane, 7:00 – 9:00 pm.

2.2.2 Public Mail Survey

In order to collect a broad base of perceptions about wildland fire and individual risk factors of homeowners in Nez Perce County, a mail survey was conducted. Using a state and county database of landowners in Nez Perce County, homeowners from the Wildland-Urban Interface surrounding each community were identified. In order to be included in the database, individuals were selected that own property and have a dwelling in Nez Perce County, as well as a mailing address in Nez Perce County. This database created a list of unique names to which a random number was affixed that contributed to the probability of being selected for the public mail survey. A total of 248 landowners meeting the above criteria were selected.

The public mail survey developed for this project has been used in the past by Northwest Management, Inc., during the execution of other WUI Wildfire Mitigation Plans. The survey used The Total Design Method (Dillman 1978) as a model to schedule the timing and content of letters sent to the selected recipients. Copies of each cover letter, mail survey, and communication are included in Appendix III.

The first in the series of mailing was sent October 19, 2004, and included a cover letter, a survey, and an offer of receiving a custom GIS map of the area of their selection in Nez Perce County if they would complete and return the survey. The free map incentive was tied into assisting their community and helping their interests by participating in this process. Each letter also informed residents about the planning process. A return self-addressed enveloped was included in each packet. A postcard reminder was sent to the non-respondents on October 28, 2004, encouraging their response. A final mailing, with a revised cover letter pleading with them to participate, was sent to non-respondents on November 5, 2004.

Surveys were returned during the months of October, November, December, January, and February. A total of 91 residents responded to the survey (as of February 21, 2005 – this will be updated until the final plan is completed). The effective response rate for this survey was 37%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 95% confidence level.

2.2.2.1 Survey Results

A summary of the survey's results will be presented here and then referred back to during the ensuing discussions on the need for various treatments, education, and other information.

All of the respondents have a home in Nez Perce County, and 96% consider this their primary residence. About 16% of the respondents were from the Culdesac area, 15% were from the Lewiston area, 12% were from the Lenore area, 12% from Lapwai, 8% from Peck, 3% from Gifford, 3% from Southwick, 3% from Sweetwater, with the remainder were from Leland, Myrtle, and Cameron.

Almost all of the respondents (90%) correctly identified that they have emergency telephone 911 services in their area. However, their ability to correctly identify if they are covered by a rural fire district was less than hoped. Respondents were asked to identify if their home is protected by a rural or city fire district. Many of the county's residents have rural or city fire protection, with the exception of the homes in the areas of Waha, Southwick, Leland, Gifford, and the remote areas surrounding Lewiston, Culdesac, Lapwai, Peck, and the Clearwater River from the Big Canyon Fire District west to the Lapwai Rural Fire District. Of the respondents, 36% correctly identified they live in an area protected by a rural or city fire district. Approximately 24% responded they do not have a fire district covering their home, when in fact they do. None of the respondents indicated that they were within a fire protection district when in reality they are not.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 53% of respondents from rural areas indicated their homes were covered with a composite material (asphalt shingles). About 42% indicated their homes were covered with a metal (eg., aluminum, tin) roofing material. Roughly 5% of the respondents indicated they have a wooden roofing material such as shakes or shingles.

Residents were asked to evaluate the proximity of trees within certain distances of their homes. Often, the density of trees around a home is an indicator of increased fire risk. The results are presented in Table 2.1

Table 2.1 Survey responses indicating the proximity of trees to homes.

Number of Trees	Within 250 feet of your home	Within 75 feet of your home
None	42%	63%
Less than 10	31%	20%
Between 10 and 25	25%	10%
More than 25	0%	0%

Approximately 90% of those returning the survey indicated they have a lawn surrounding their home. Of these individual home sites, 86% indicated they keep this lawn green through the fire season. 29% of respondents indicated they have brush within 75 feet of their homes, while 2% said that this area was bare.

The average driveway length of the respondents from rural areas was approximately 673 feet long, from their main road to their parking area. Roughly 9% of these respondents had a driveway over ½ mile long, and a corresponding 19% had a driveway over ¼ of a mile long. Of these homes with lengthy driveways, roughly 23% have turnouts allowing two vehicles to pass each other in the case of an emergency. 80% of respondents' driveways have a gravel surface, while 7% are bare dirt. 4% of the total respondents have a steep driveway, requiring 4-wheel drive in slippery or icy conditions. Approximately 63% of all homeowners indicated they have an alternative escape route, with the remaining 37% indicating only one-way-in and one-way-out.

Nearly all respondents (98%) indicated they have some type of tools to use against a wildfire that threatens their home. Table 2.2 summarizes these responses.

Table 2.2. Percent of homes with indicated fire fighting tools in Nez Perce County.

97% – Hand tools (shovel, Pulaski, etc.)
25% – Portable water tank
19% – Stationery water tank
38% – Pond, lake, or stream water supply close
23% – Water pump and fire hose
19% – Equipment suitable for creating fire breaks (bulldozer, cat, skidder, etc.)

Roughly 21% of the respondents in Nez Perce County indicated they have someone in their household trained in wildland fire fighting. Approximately 12% indicated someone in the household had been trained in structural fire fighting. 73% indicated that someone in the household had First Aid training. However, it is important to note that these questions did not specify a standard nor did it refer to how long ago the training was received.

A couple of questions in the survey related to on-going fire mitigation efforts households may be implementing. Respondents were asked if they conduct a periodic fuels reduction program near their home sites, such as grass or brush burning. Approximately 69% of rural respondents answered affirmative to this question, while 41% responded that livestock (cattle, horses, sheep) graze the grasses and forbs around their home sites.

Respondents were asked to complete a fuel hazard rating worksheet to assess their home's fire risk rating. An additional column titled "results" has been added to the table, showing the percent of respondents circling each rating (Table 2.3).

Circle the ratings in each category that best describes your home.

Table 2.3. Fuel Hazard Rating Worksheet		Rating	Results
Fuel Hazard	Small, light fuels (grasses, forbs, weeds, shrubs)	1	65%
	Medium size fuels (brush, large shrubs, small trees)	2	30%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	6%
Slope Hazard	Mild slopes (0-5%)	1	48%
	Moderate slope (6-20%)	2	33%
	Steep Slopes (21-40%)	3	16%
	Extreme slopes (41% and greater)	4	2%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	37%
	Noncombustible roof and combustible siding material	3	33%
	Combustible roof and noncombustible siding material	7	8%
	Combustible roof and combustible siding materials	10	22%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -0.7 pts
	Areas having history of higher than average fire occurrence	+3	
	Areas exposed to severe fire weather and strong winds	+4	
	Areas with existing fuel modifications or usable fire breaks	-3	
	Areas with local facilities (water systems, rural fire districts, dozers)	-3	

Calculating your risk

Values below are the average response value to each question.

Fuel hazard	1.4	x Slope Hazard	1.7	= 2.4
Structural hazard	+		4.1	
Additional factors	(+ or -)		-0.7	
Total Hazard Points	=		5.78 .	

Table 2.4. Percent of respondents in each risk category as determined by the survey respondents.
01% – Extreme Risk = 26 + points
05% – High Risk = 16–25 points
34% – Moderate Risk = 6–15 points
59% – Low Risk = 6 or less points

Values below are the average response value to each question for those living in **rural** areas only.

Values below are the average response value to each question for those living in **urban** areas only.

Fuel hazard	1.4	x Slope Hazard	1.8	=	2.5
Structural hazard		+			4.0
Additional factors		(+ or -)			-0.4
Total Hazard Points				=	6.1 .

Fuel hazard	1.6	x Slope Hazard	1.3	=	2.1
Structural hazard		+			4.5
Additional factors		(+ or -)			-2.0
Total Hazard Points				=	4.6 .

Table 2.5. Percent of respondents in each risk category as determined by the survey respondents.

01% – Extreme Risk = 26 + points
07% – High Risk = 16–25 points
34% – Moderate Risk = 7–15 points
58% – Low Risk = 6 or less points

Table 2.6. Percent of respondents in each risk category as determined by the survey respondents.

00% – Extreme Risk = 26 + points
00% – High Risk = 16–25 points
31% – Moderate Risk = 7–15 points
69% – Low Risk = 6 or less points

Maximum household rating form score was 26 points, as assessed by the homeowners. These numbers were compared to observations made by field crews trained in wildland fire fighting. These results indicate that for the most part, these indications are only slightly lower than the risk rating assigned by the "professionals". Anecdotal evidence would indicate that Nez Perce County landowners involved in this survey have a more realistic view of wildfire risk than the landowners in other Idaho counties where these questions have been asked.

Finally, respondents were asked "if offered in your area, would members of your household attend a free, or low cost, one-day training seminar designed to teach homeowners in the wildland–urban interface how to improve the defensible space surrounding your home and adjacent outbuildings?" A majority of the respondents, 53% indicated a desire to participate in this type of training.

Homeowners were also asked, "How do you feel Wildland-Urban Interface Fire Mitigation projects should be funded in the areas surrounding homes, communities, and infrastructure such as power lines and major roads?" Responses are summarized in Table 2.7.

Table 2.7. Public Opinion of Wildfire Mitigation Funding Preferences.

	Mark the box that best applies to your preference		
	100% Public Funding	**Cost-Share (Public & Private)**	**Privately Funded (Owner or Company)**
Home Defensibility Projects	14%	37%	37%
Community Defensibility Projects	45%	34%	10%
Infrastructure Projects Roads, Bridges, Power Lines, Etc.	63%	12%	12%

2.2.3 Committee Meetings

The following list of people who participated in the planning committee meetings, volunteered time, or responded to elements of the Nez Perce County Wildland-Urban Interface Wildfire Mitigation Plan's preparation.

- Tom Richards.....Northwest Management, Inc.
- Betty Clark.....Nez Perce County Planning
- Bill Reynolds .....Nez Perce County GIS
- Bill Maison.....Clearwater Emergency Services

- Chuck Doty.....Clearwater RC&D
- Dan Pierce .....Clearwater RC&D
- Debbie Ruppe .....Bureau of Homeland Security
- Dick Hodge.....Clearwater RC&D
- Howard Weeks.....Clearwater-Potlatch Timber Protection Association
- John Willard .....Sunnyside Rural Fire Department
- Laura Barrett .....USDA Forest Service
- Mark Craig.....Bureau of Land Management
- Mel Johnson.....Nez Perce County Sheriffs Office
- Randy Kingsbury.....Nez Perce County Sheriffs Office
- Ron Wittman .....Nez Perce County Commissioner
- Rusty Eck.....Clearwater-Potlatch Timber Protection Association
- Tami Parkinson .....USDA Forest Service
- Tom McWilliams.....USDA Forest Service
- John DeGroot.....Nez Perce Tribe
- Sandy Holt.....Nez Perce Tribe
- Roger Kechter.....Idaho Department of Lands
- Thom Hawkins .....Idaho Department of Lands

Committee Meetings were scheduled and held on the following dates:

2.2.3.1 September 29th, 2004 – Brammer Building

Meeting began at approximately 9:00 AM. (Attendance list attached)
The meeting was well attended by Nez Perce County Commissioners, NPC Emergency Management, NPC GIS Dept., NPC Planning, NPC Sheriff, USFS, Clearwater RC&D, Bureau of Land Management and Northwest Management, Inc.

Meeting Minutes
Meeting welcome by Toby Brown and Tom Richards of Northwest Management, Inc.

Overview of the Fire Mitigation Plan Process
Toby Brown presented slide show of FMP planning process for a FEMA Compliant plan. Discussed how this plan is an update of the previous plan completed by the RC&D and that the final product will be National Fire Plan and FEMA compatible. Previous plan did not have the public input and involvement component. There were no guidelines for an FMP when the original plan was completed. It was noted that Nez Perce Tribe and the Idaho Department of Lands were both absent from the meeting. It was suggested that both the Lands Manager from the Tribe, John Degroot, as well as the NPT RFD Fire Chief , Sandy Holt, be invited to attend these committee meetings. Roger Kechter and Thom Hawkins were identified as representatives from the IDL that should be present to provide input. Tom Richards will follow up on inviting these folks to the next meeting. There was some discussion on the opportunities

of setting up Rural Fire Districts in Nez Perce County. Currently the Sheriffs office is responding to structural fires in the areas not currently w/in the bounds of an RFD. There is also a fire protection subscription service available within the county. Sheriff Kingsbury would like to know if his office can get equipment through the implementation of this plan. Does it provide an avenue for funding or grants? Federal Gov't granting and funding agencies need an organization (county or other) in place to deal with. Creation of new RFD's is a big issue in the county an needs to be addressed. Usually the creation of fire district fails due to the increased tax issue. Creation of a district needs to start at the grassroots level. Mel Johnson will get a copy of the Nez Perce County All Hazards Mitigation Plan to Northwest Management, Inc. Also Betty Clack will get a copy of the County Comprehensive Plan to NMI. Sheriff Kingsbury will provide maps of the available water spots within the county.

Media-Release—Sample
Handed out sample copy of the media release to be sent to the local newspapers. The Lewiston Morning Tribune, Clearwater Tribune, Money Saver and the Nez Perce Tribal paper were identified as the news papers that the Media Release will be sent to. Changes within the Media Release - release should originate from the Commissioners office, add the Commissioners phone number and address to the letterhead. Tom Richards will e-mail the Press Release to Ron Wittman and he will run it by the other Commissioners and send the release out.

Public Mail Survey
Handed out and review the Survey that will be sent to approximately 200 to 250 rural Nez Perce County residents. Committee asked to review and critique.
Additional Questions/Comments:

- Reubens area has no 911.
- Add "shrubs" to question #8.
- Question #11—Add question referring to how wide their driveway is, i.e. 6'-10', 12'-16', 18'+.
- Add question on whether their private lane services more than one residence.
- Define steepness of road—easily accessed by 2 wheel drive vehicle year-round, accessible only by 4-wheel drive.—add this question
- Add question on overhead clearance—archways or trees.
- Add question—Do residents know when burning seasons are—in the state of Idaho and Nez Perce County.
- Stress that this is a confidential survey. Bold the Confidentiality Statement in the letter.

Community Assessments
Handed out draft community assessments for communities that were identified by the federal government as communities at risk from wildfire.
Changes to the Draft Assessments

- Should do Peck/Big Canyon as a separate assessment.
- Divide the Clearwater Canyon into upper and lower at the Arrow Bridge. Assess northern and southern sides of the canyon separately. Will end up with Upper-Northern, Upper-southern, Lower-northern and Lower-southern.
- Add Lapwai/Sweetwater corridor
- Add Leland/Southwick area
- Add Gifford area
- Lump Soldiers Meadows area with the Waha. Refer to Craig Mountain as Waha.

Fire Protection Districts
Wildland fire protection—Check with Thom Hawkins of the IDL on the specifics of the IDL's protection boundaries. Does it actually go to Tammany Creek? Some of rural areas outside RFD protection districts are covered by Subscription—Sunnyside RFD protects some residences in the eastern portion of NPC. Genesee RFD—Betty Clack will provide a legal description of the boundary of this RFD. Changes on Fire Protection Districts Map - Culdesac and Lapwai Fire departments will respond to a 10 mile radius circle around those towns (Do not want to portray this on the map.) Plan needs to address the fire protection provided by the Sheriffs Office. Additional RFD's, funding??? Contact NP Tribe about the Legal Fire Protection that it provides - they have a contract with IDL to provide protection on Tribal owned lands (Trust Lands). Does it extend further than this? NMI will contact Tribe to clarify this. Potlatch Corp. - City of Lewiston will respond to fire w/in the Potlatch facility. Potlatch will not go outside of their ground to fight fire.

Infrastructure—Roads, Railroads, gas lines, etc.

- Identify primary and secondary roads
- Primary Roads—High traffic, Arterials
- Secondary--??, Collector Roads
- Will use the NPC Comprehensive Plan , Transportation Plan definition of Primary and Secondary roads—NPC will be coming out with a new map identifying these roads. Betty Clack will provide a copy to NMI.
- Radio Repeaters—Idaho State Interoperable Radio Commission. This commission is assessing Statewide radio communication. They are in the data collection phase at this time. NMI will check with Debbie Root? Repeater Sites - marked on map
- Teaken Butte
- Sanders
- Cottonwood Butte
- Culdesac
- Winchester - outside the county
- Lewiston Hill

Resource and Capabilities Assessments
Need to be updated by RFD's - Genesee RFD #2, IDL, both Ponderosa and Craig Mountain. Need to has an assessment for Big Canyon FD Exclude from the plan.

- City of Lewiston
- Potlatch Corp.
- Clearwater Power Co.
- Clearwater Fire Services—No mutual aid agreement, not recognized by the county at this time. Need to include
- Nez Perce Tribe Fire Department

Schedule of Committee and Public Meetings
Next meeting Scheduled tentatively for November 16. 1:00 PM.

2.2.3.2 November 18th, 2004 – Brammer Building

Meeting began at approximately 9:00 AM. The meeting was well attended by Nez Perce County Commissioners, NPC Emergency Management, NPC GIS Dept., NPC Planning, NPC Sheriff, USFS, Clearwater RC&D, Bureau of Land Management and Northwest Management, Inc.

Meeting Minutes

Meeting welcome by Bill Schlosser and Tom Richards of Northwest Management, Inc. Bill Schlosser recapped the FMP process and noted changes that needed to be made to Kendrick/Juliaetta WUI.

Next Meetings—Tentative Dates

Public Meetings—Week of January 23, 2005
Committee Meeting—Jan. 18, 2005
Committee Meeting—Feb. 15, 2005
Committee Meeting—Plan Review—March 1, 2005
Plan Public Review—March 8, 2005
All Plan Comments Due by March 22, 2005

Infrastructure Discussion

IDL indicated that they have placed a repeater in Hells Canyon on the Oregon side of the River. They will send NMI the Lat and Long so they can be placed on map.

Roads—Primary—Take from NPC Transportation Plan. Secondary—Link to primaries

Need to plan mitigation activities along primary and secondary roads so they can be kept open during emergencies.—Fuels treatments, also potential for future funding for maintenance

Identify the road classes for:

Evacuation Routes

Maintain access throughout county

Critical Road for upgrading—Zaza road in the Craig Mtn. area, needs widening. Have increased recreation use in area.

Bridges—Bridge rating is contained in the GIS layer that has been provided to NMI from NPC.

Community Assessments

Have been sent out for review. Waiting for comments.

Resources and Capabilities

Fire Protection Districts:

IDL—Craig Mtn. to Tammany Creek Road to Webb Ridge Road.
NPC Sheriff—Responds to fires within county where little or not Rural Districts.
RFD's—Recommended that several RFD's be created within the county. Around Lewiston, Waha area, Clearwater River Corridor. Areas that new housing has been occurring.

WUI Treatments

IDL—Framing Our Community Program—Waha Area—Charlie Grubb responsible for project. Recommend creation of Fuel break around the Waha area. Also home defensible space assistance available through the IDL. Need to get past and planned treatments from the IDL, BLM and NPT for inclusion into plan.

Policy—Recommend a permanent County fire committee to carry out Fire Mitigation Plan. One person could also cover Clearwater and Lewis Counties.

2.2.3.3 January 21, 2005 – Brammer Building

Meeting began at approximately 9:00 AM. The meeting was well attended by Nez Perce County Commissioners, NPC Emergency Management, NPC GIS Dept., NPC Planning, NPC Sheriff, USFS, Clearwater RC&D, Bureau of Land Management and Northwest Management, Inc.

Meeting Minutes

Meeting welcome by Bill Schlosser and Tom Richards of Northwest Management, Inc.

Fire Districts—New or Needed

Nez Perce Tribe Rural Fire District

Should be resolved by the start of fire season—will cover wildland fire, not structure protection. Charlie Grubb gave us a copy of the Tribe protection boundary. Should show theses maps at the public meetings. Need to note that the IDL is not downgrading or reducing its resources.

Waha—Need to create an RFD in this area.

Big Canyon FD—Considering a new district in the Myrtle/Lenore area. Randy Moss of Big

Canyon has information and district boundaries for this new district.

Kendirck/Julietta—Expansion Proposed—Will be voted on at March 24 meeting.

Lapawai/Sweetwater—Need new one

Culdesac Area

Cougar Ridge—Lewiston area

Public Survey Update—have a 40% response rate in NP County out of a total of 225 surveys. 80% of

surveys went to rural residents.

Enhancements to RFD's and specific treatments—What needs to happen in the county?

Bridges/Roads—All needs are covered in the NPC Transportation Plan which should be tiered to FMP

Policy—FMP should support and endorse the County Transportation Plan.—need to have roads built to meet standards for Emergency Equip. access.

Water Development

Waha Lake area—IDL to install ponds in area, looking for sites. Will use Equip Money to build ponds. Also need above ground tanks for filling of structural engines.

A goal for ponds would be to have a dip pond every 10 miles. Currently have 50 within district. Need 3 to 4 within NP Co.

Above ground tank needs:

Need 4 in Soldiers Meadows to Waha Area

Need 3-4 in Lenore area

Melrose area—No access to river, have a hydrant in Peck. Could use additional

above ground tanks.

River Tanks—need up to 10 tanks near population centers and on ridges.

Treatment areas—Potential Treatment areas

Waha
Soldiers Meadows
Forest
Lenore area
Clearwater Corridor
Peck
Kendrick/Julietta

Fuels treatments in grass areas. Star-thistle. IDL views as a hazardous fuel type. Insect depredation in conjunction with grass seeding appears to be having an impact on star thistle. Biggest problem with this fuel type in Lapwai and Culdesac areas.

Education—Appears to big need in NP Co. Who will do the education? RC&D, SCA, NP Co., Masters Gardeners?

Hazardous Fuels Co-ordinator—Appears to be a long way down the road for this county. Will be recommended within the plan. Would implement a Firewise type of program. Could share with surrounding counties.

2.2.4 Public Meetings

Public meetings were held during the planning process, as an integral component to the planning process. It was the desire of the planning committee, and the Nez Perce County Commissioners to integrate the public's input to the development of the fire mitigation plan.

Formal public meetings were scheduled on February 8, 2005, at Lewiston, Idaho, on February 9, 2005, at Lapwai, Idaho, and on February 10, 2005, at Myrtle, Idaho. The purpose of these meetings was to share information on the planning process with a broadly representative cross section of Nez Perce County landowners. Both meetings had wall maps posted in the meeting rooms with many of the analysis results summarized specifically for the risk assessments, location of structures, fire protection, and related information. The formal portion of the presentations included a PowerPoint presentation made by Project Director, Dr. William E. Schlosser. During his presentations, comments from committee members, fire chiefs, and others were encouraged in an effort to engage the audience in a discussion.

It was made clear to all in attendance that their input was welcome and encouraged, as specific treatments had not yet been decided, nor had the risk assessment been completed. Attendees were told that they could provide oral comment during these meetings, they could provide written comment to the meetings, or they could request more information in person to discuss the plan. In addition, attendees were told they would have an opportunity to review the draft plan prior to its completion to further facilitate their comments and input.

The formal presentations lasted approximately 1 hour and included many questions and comments from the audience. Following the meetings, many discussions continued with the committee members and the general public discussing specific areas, potential treatments, the risk analysis, and other topics.

The following are comments, questions or suggestions from the meetings:

2.2.4.1 Lewiston Public Meeting

February 8, 2005 – Lewiston Community Center

Introduction of the Fire Mitigation Planning process by Bill Schlosser. He covered the development of fire risk analysis, WUI development, etc. During and following the presentation there was informal discussion on Fire Mitigation Planning.

The Nez Perce County Sheriff will no longer respond to wildland fire in the areas not covered by a rural fire district within the County. The new sheriff wants his deputies to concentrate on law enforcement and not on fire fighting. As a consequence, the County Commissioners have formed a Fire Chief/Coordinator position to facilitate the education and coordination of volunteer wildland fire suppression and to respond to vehicle fires within areas not covered by fire districts.

The goals of the new county fire program are:

Education

Push IDL defensible space program

Secure grants for firefighting equipment

Help to set up Rural Fire Districts

The Nez Perce Tribe will also be responsible for responding to wildland fires in an area to the north of the IDL protection area and within the reservation boundary. Again they will respond primarily to wildland fire and not structural. NPT will have jurisdiction over the fires within this area and other agencies will be co-operators through MOU's.

This still leaves a large area of the county not covered by Rural Fire Protection (structural protection). This is probably one of the primary needs for the County—Creation and expansion of the Rural Fire Districts.

Some of the area un-protected by Rural Fire Districts is covered by subscription based fire protection. There are approximately 300 homes protected by these entities.

New RFD's needed in the following areas:

Waha

Clearwater River Corridor

People must take the responsibility to protect themselves. Most of the new residents are anti-district or they believe that they are covered by some sort of fire protection.

Defensible Space

IDL offered a defensible space program for free at no cost in the Waha Glen to 100 homes, only 4 took the offer. Education is needed to show people the benefits of this type of program.

Mitigation Ideas

- Creation of RFD's
- Continuation of the defensible space program as per the IDL.
- Creation of County level fire mitigation coordinator for NP County.
- Integration of protection and mitigation treatments
- Education
    - Education on defensible space

- RFD creation—Show people the savings in insurance costs if they are within an fire protection district. Move from 10 to 9 rating—18% savings in insurance costs. Move from 10 to 7—49%

Should have a 5 to 10 year plan to treat 50% of the homes in the Waha area.

2.2.4.2 Lapwai Public Meeting

February 9, 2005 – Lapwai City Hall

The Nez Perce Tribe will respond within the Reservation boundary, but not outside the boundary unless requested by the State under their mutual agreement. The Tribe and the State have recently established new boundaries for protection between the Reservation and the County wildlands.

The Waha area southeast of Lewiston is considered by most of the fire personnel to be the most critical WUI area. The home owners have been notified to enter into mitigation activities provided by the IDL, but only a few landowners have taken the opportunity.

Some of the areas within the County that are not covered by a rural fire district are under a subscription fire protection contract with a local fire company. The company covers approximately ten miles outside the rural fire district and presently has approximately 300 plus home under contract. This contractor stated that they are rated to 10 miles outside of Lewiston. The landowners that have entered in the subscription service have received significant reduction in their home insurance cost as stated by the contractor.

In the Waha area tanks and water sources need to be established to shorten turn around times and increase fire fighting efficiency.

The Sheriff department will no longer provide fire fighting services as they have in the past and the County is considering a rural wildland district to address the area that was covered by the sheriff's office in the past. The equipment will be passed to the new district.

Most of the attendee's also had attended the meeting in Lewiston the previous evening and the issues for the most part appeared to be very similar in nature from the earlier meeting.

2.2.4.3 Lenore Public Meeting

February 10, 2005 – Nez Perce Tribal Fish Hatchery

Meeting moved from the Idaho Fish and Game building at Myrtle to the Nez Perce Tribal Fish Hatchery at Lenore/Cherry Lane.

Bill provided an intro and background to the fire mitigation planning process. Gave the people in attendance a progress report on where the report development is at now. A free flowing discussion followed Bill's introduction.

As indicated in the other meetings with in the county, RFD's appear to be the biggest need in regards to fire mitigation within NP county.

Ron Wittman, NP County Commissioner outlined the proposed new County fire department(?).

> Sheriff's Dept. will no longer respond to wildfire as firefighters within the county. The county plans to for an initial response unit to fight highway and wildfires within the unprotected areas of the county. Wildland fires are primary focus, not structural fires. They have hire a fire response coordinator for the county. Long term goals of the fire department include

- Creation of countywide fire protection district
- Structural protection district is also long term goal—county will take the responsibility to push this forward through education.
- Education on fire mitigation treatments
- Push the IDL fire mitigation program within the county
- Secure grants

New fire district proposed:

A new fire district has been proposed along the Clearwater River in NP County. It will run from the Sunnyside district boundary in the east to Myrtle. They will not force people to belong to the district, they are mapping the area now to include only those people who wish to be included within the district. Land has been donated at both ends of the proposed district for locating fire stations.

Other Needs

- Countywide dispatch—difficult for upriver districts to get the county to dispatch other emergency personnel to them.
- Communications—especially Big Canyon Fire district—They cannot communicate with themselves let alone anyone outside their district. Need radios, pagers, repeaters.
- Structures and equipment for new fire district along Clearwater River. Structural grants.
- State of Idaho should enforce the ISO ratings so the insurance companies will abide by it and not sell insurance to those outside of fire districts.
- Create education packet on how to form a fire district or re-organize a current protection district.
- Fuels Mitigation program in Waha, Clearwater River corridor and Potlatch River Corridor.

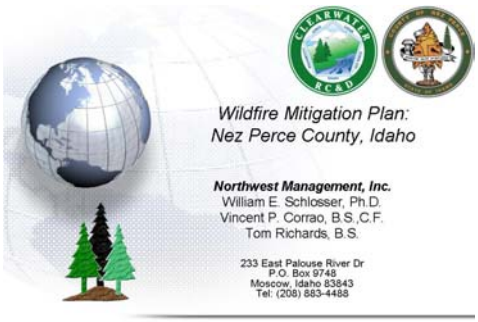
2.2.4.4 Public meeting slide show

Figure 2.1. Nez Perce County Public Meeting Slide Show.

The public meeting slide show (title slide above) is outlined below.

Table 2.8. Public meeting slide show

Slide 1



Slide 2

Slide 3

Slide 4

Slide 5

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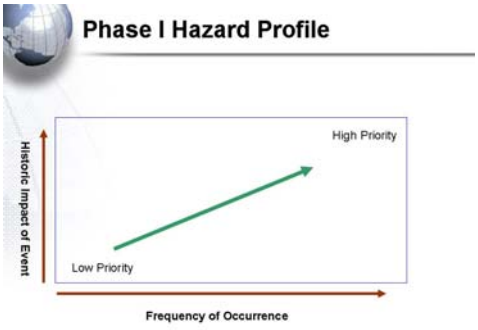
Slide 7



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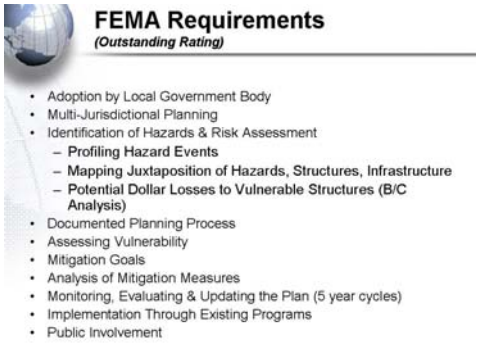

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Wildfire Mitigation: National Policy

- **National Fire Plan (2000)**
  - Preparedness
  - Rehabilitation & Restoration
  - Hazardous Fuel Reduction
  - Community Protection
  - Accountability
- **Statewide Implementation Strategy**
  - Idaho Bureau of Homeland Security
  - Idaho Implementation Strategy of the National Fire Plan

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Healthy Forests Restoration Act

- Strengthens public participation in developing high priority projects;
- Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
- Creates a pre-decisional objections process encouraging early public participation in project planning; and
- Issues clear guidance for court action challenging HFRA projects.

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Funding Opportunities

- **Federal Monies**
  - National Fire Plan
  - Healthy Forests Restoration Act
  - Federal Emergency Management Agency
- **State Monies**
  - Statewide Implementation Efforts
  - Idaho Bureau of Homeland Security
- **The Goal is Hazard Reduction**
  - Protection of People and Structures
  - Protection of Infrastructure
  - Protection of Economy
  - Protection of Ecosystems

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Recommendations

- WUI Safety & Policy
- People & Structures
- Infrastructure
- Resources & Capabilities
- Regional Land Management Recommendations

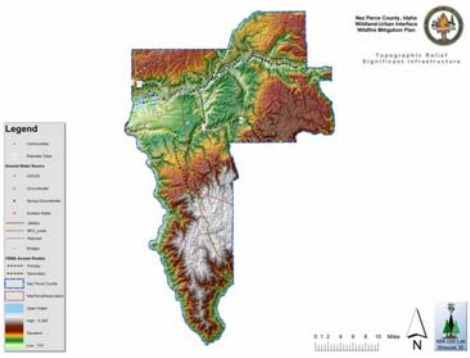
We will revisit this list at the end of the presentation…

Slide 13

Hazard Mitigation Approach

- Hazard Profile
- Risk Assessment
- Vulnerability Appraisal
- Mitigation Strategy Development
- Prioritization and Planning
- Implement the Plan!

Slide 14



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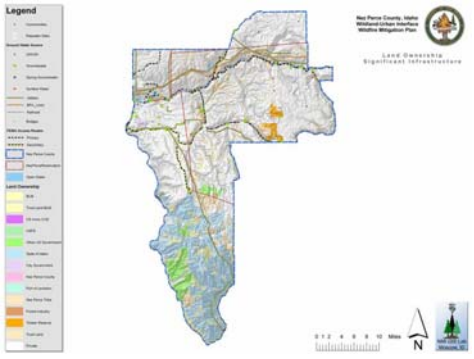

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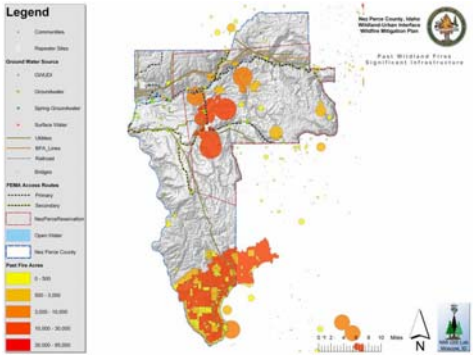

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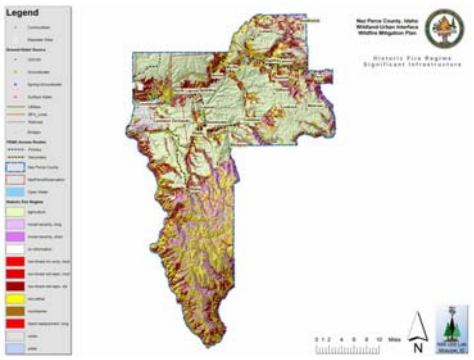

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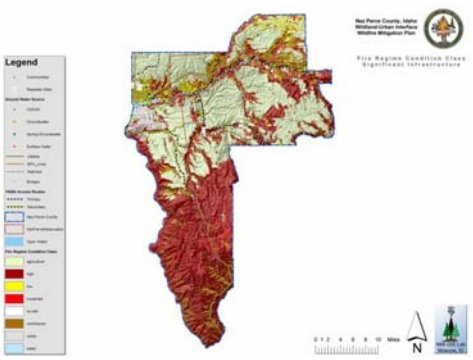

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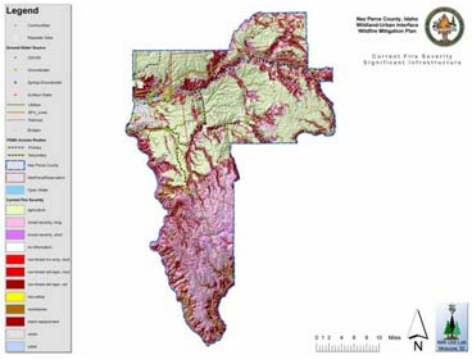

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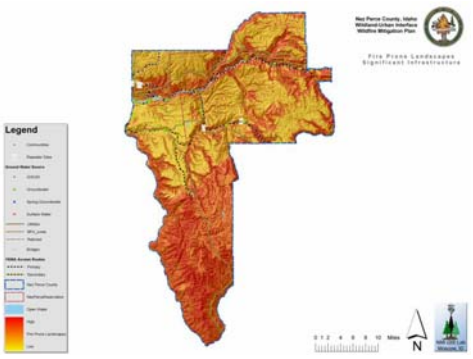

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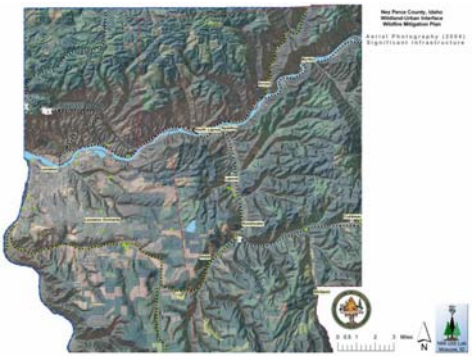

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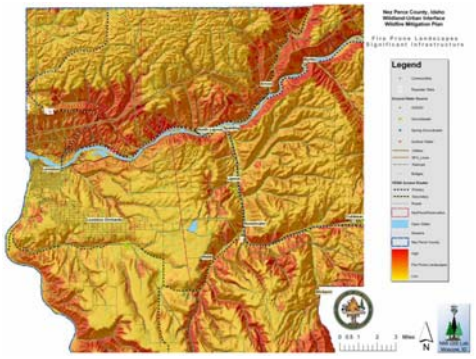

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Wildland-Urban Interface

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation, the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres;
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size; and
- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.

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Defining Nez Perce County's Wildland-Urban Interface

- Unique to each area & it changes over time
- Based on where structures are currently located
- Uses mathematical formulae and geospatial relationships to visually represent where the WUI exists
- *When you see it, you'll understand what we mean*

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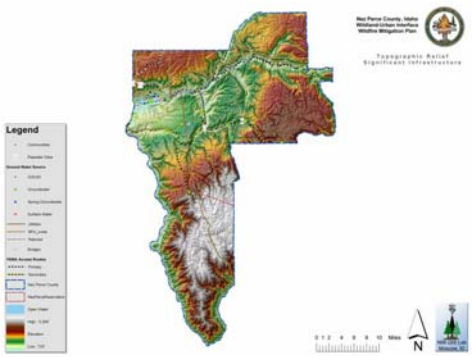

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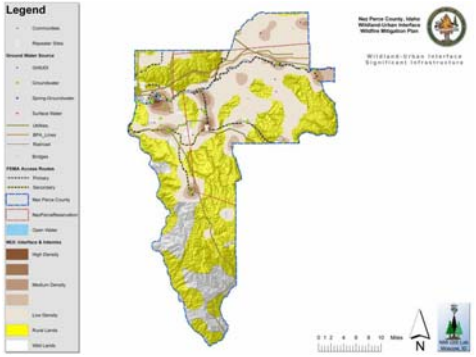

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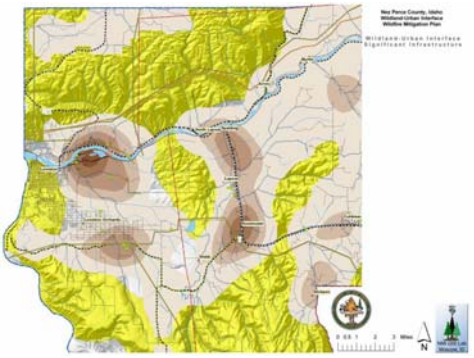

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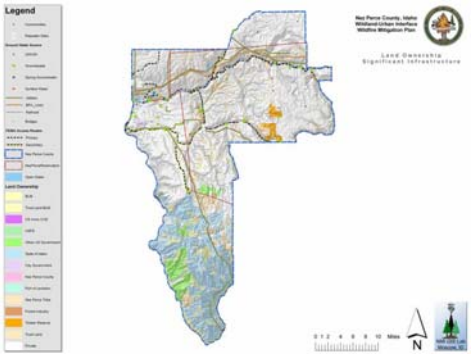
Preparedness

- City Fire Protection
- Rural Fire Protection
- Wildland Fire Protection

Slide 32



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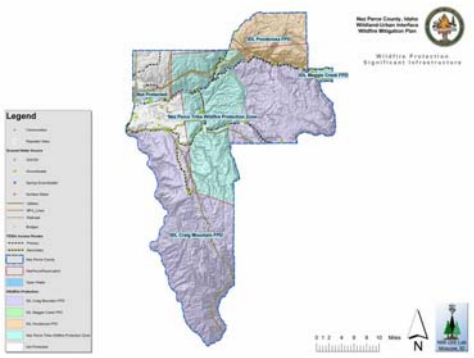

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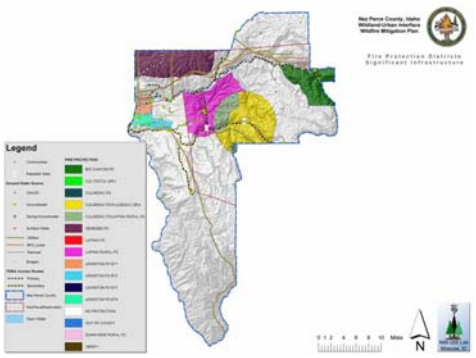

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Public Involvement

- Public Mail Survey sent a random sample of households in Nez Perce County
  - Mailed in October –December, 248 total households, 36% return rate (*2 - 5% is national average*)
- Three Public Meetings will be held this week
- Public Review of Draft Documents

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Written Plan Completion

- Committee will review the draft document first
- Public Review of the Draft document is next
- The final document will be presented for acceptance by the County Commissioners and others

Slide 37

Recommendations

- WUI Safety & Policy
- People & Structures
- Infrastructure
- Resources & Capabilities
- Regional Land Management Recommendations

Are we accomplishing these goals?

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2.3 Review of the WUI Wildfire Mitigation Plan

Review of sections of this document was conducted by the planning committee during the planning process as maps, summaries, and written assessments were completed. These individuals included fire mitigation specialists, fire fighters, planners, elected officials, and others involved in the coordination process. Preliminary findings were discussed at the public meetings, where comments were collected and facilitated.

The results of these formal and informal reviews were integrated into a DRAFT Wildland-Urban Interface Wildfire Mitigation Plan. This plan was given to members of the planning committee on February 22, 2005.

Public review of the plan was open from March 14 – March 25, 2005. Press releases announced its availability and copies were available for editing with comments sent to Dr. Schlosser, Northwest Management, Inc.

Chapter 3: County Characteristics & Risk Assessment

3 Background and Area Description

3.1 Demographics

Nez Perce County reported an increase in total population from 33,754 in 1990 to 37,410 in 2000 with approximately 15,285 households. Nez Perce County has four incorporated places, Lewiston (pop. 31,047), Lapwai (pop. 1,179), Culdesac (pop. 383), and Peck (pop. 220). The population in Nez Perce County has been growing steadily over the past decade. Nearly 83% of the total county population resides in Lewiston. Unincorporated communities include Waha, Sweetwater, Gifford, Spalding, Leland, Cameron, Southwick, and Lenore. The total land area of the county is roughly 856.36 square miles (548,070.4 acres).

Table 3.1 summarizes some relevant demographic statistics for Nez Perce County.

Table 3.1 Selected demographic statistics for Nez Perce County, Idaho, from Census 2000.

Total population	**37,410**	**100.0**
SEX AND AGE		
Male	18,435	49.3
Female	18,975	50.7
Under 5 years	2,237	6.0
5 to 9 years	2,356	6.3
10 to 14 years	2,605	7.0
15 to 19 years	2,701	7.2
20 to 24 years	2,752	7.4
25 to 34 years	4,413	11.8
35 to 44 years	5,537	14.8
45 to 54 years	5,105	13.6
55 to 59 years	1,909	5.1
60 to 64 years	1,519	4.1
65 to 74 years	3,083	8.2
75 to 84 years	2,311	6.2
85 years and over	882	2.4
Median age (years)	38.2	(X)
18 years and over	28,545	76.3
Male	13,783	36.8
Female	14,762	39.5
21 years and over	26,945	72.0
62 years and over	7,211	19.3
65 years and over	6,276	16.8
Male	2,719	7.3
Female	3,557	9.5

Table 3.1 Selected demographic statistics for Nez Perce County, Idaho, from Census 2000.

RELATIONSHIP		
Population	**37,410**	**100.0**
In households	36,747	98.2
Householder	15,285	40.9
Spouse	8,137	21.8
Child	9,804	26.2
Own child under 18 years	8,028	21.5
Other relatives	1,453	3.9
Under 18 years	580	1.6
Nonrelatives	2,068	5.5
Unmarried partner	879	2.3
In group quarters	663	1.8
Institutionalized population	395	1.1
Noninstitutionalized population	268	0.7
HOUSEHOLDS BY TYPE		
Households	**15,285**	**100.0**
Family households (families)	10,137	66.3
With own children under 18 years	4,428	29.0
Married-couple family	8,084	52.9
With own children under 18 years	3,188	20.9
Female householder, no husband present	1,462	9.6
With own children under 18 years	895	5.9
Nonfamily households	5,148	33.7
Householder living alone	4,079	26.7
Householder 65 years and over	1,690	11.1
Households with individuals under 18 years	4,836	31.6
Households with individuals 65 years and over	5,938	38.8
Average household size	2.40	(X)
Average family size	2.91	(X)
HOUSING TENURE		
Occupied housing units	**15,286**	**100.0**
Owner-occupied housing units	10,508	68.7
Renter-occupied housing units	4,778	31.3
Average household size of owner-occupied unit	2.50	(X)
Average household size of renter-occupied unit	2.19	(X)

(X) Not applicable
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrices P1, P3, P4, P8, P9, P12, P13, P,17, P18, P19, P20, P23, P27, P28, P33, PCT5, PCT8, PCT11, PCT15, H1, H3, H4, H5, H11, and H12.

3.2 Socioeconomics

Nez Perce County had a total of 10,508 occupied housing units and a population density of 44.1 persons per square mile reported in the 2000 Census. Ethnicity in Nez Perce County is distributed: white 91.6%, black or African American 0.3%, American Indian or Alaskan Native 5.3%, Asian 0.7%, Hispanic or Latino 1.9%, two or more races 1.6%, and some other race 0.5%.

Specific economic data for individual communities is collected by the US Census; in Nez Perce County this includes Lewiston, Culdesac, Lapwai, and Peck. Lewiston households earn a median income of $36,677 annually, Culdesac has a median income of $25,750, Lapwai averages 26,800, and Peck reported a median income of $27,500, all of which compares to the Nez Perce County median income during the same period of $36,282. Table 3.2 shows the dispersal of households in various income categories in Nez Perce County.

Table 3.2 Income in 1999.	**Nez Perce County**	
	Number	**Percent**
Households	15,285	100.0
Less than $10,000	1,661	10.9
$10,000 to $14,999	1,214	7.9
$15,000 to $24,999	2,276	14.9
$25,000 to $34,999	2,228	14.6
$35,000 to $49,999	2,563	16.8
$50,000 to $74,999	3,192	20.9
$75,000 to $99,999	1,288	8.4
$100,000 to $149,999	582	3.8
$150,000 to $199,999	144	0.9
$200,000 or more	137	0.9
Median household income (dollars)	36,282	(X)

(Census 2000)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of its projects on minority or low-income populations. In Nez Perce County, a significant number, 8.6%, of families are at or below the poverty level (Table 3.3).

Table 3.3 Poverty Status in 1999 (below poverty level).	**Nez Perce County**	
	Number	**Percent**
Families	872	(X)
Percent below poverty level	(X)	8.6
With related children under 18 years	679	(X)
Percent below poverty level	(X)	14.3
With related children under 5 years	363	(X)
Percent below poverty level	(X)	20.4
Families with female householder, no husband present	487	(X)

Table 3.3 Poverty Status in 1999 (below poverty level).	Nez Perce County	
	Number	Percent
Percent below poverty level	(X)	33.3
With related children under 18 years	456	(X)
Percent below poverty level	(X)	46.5
With related children under 5 years	218	(X)
Percent below poverty level	(X)	65.3
Individuals	4,468	(X)
Percent below poverty level	(X)	12.2
18 years and over	3,050	(X)
Percent below poverty level	(X)	10.9
65 years and over	398	(X)
Percent below poverty level	(X)	6.7
Related children under 18 years	1,325	(X)
Percent below poverty level	(X)	15.4
Related children 5 to 17 years	866	(X)
Percent below poverty level	(X)	13.5
Unrelated individuals 15 years and over	1,834	(X)
Percent below poverty level	(X)	25.6

(Census 2000)

The unemployment rate was 2.9% in Nez Perce County in 1999, compared to 4.4% nationally during the same period. Approximately 3.2% of the Nez Perce County employed population worked in natural resources.

Table 3.4 Employment & Industry	Nez Perce County	
	Number	Percent
OCCUPATION		
Management, professional, and related occupations	4,877	27.3
Service occupations	3,122	17.5
Sales and office occupations	4,674	26.2
Farming, fishing, and forestry occupations	226	1.3
Construction, extraction, and maintenance occupations	1,813	10.2
Production, transportation, and material moving occupations	3,144	17.6
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	571	3.2
Construction	1,168	6.5
Manufacturing	2,738	15.3
Wholesale trade	528	3.0
Retail trade	2,024	11.3
Transportation and warehousing, and utilities	721	4.0
Information	251	1.4
Finance, insurance, real estate, and rental and leasing	1,034	5.8
Professional, scientific, management, administrative, and	859	4.8

Table 3.4 Employment & Industry	Nez Perce County	
	Number	Percent
waste management services		
Educational, health and social services	4,074	22.8
Arts, entertainment, recreation, accommodation and food services	1,660	9.3
Other services (except public administration)	1,091	6.1
Public administration	1,137	6.4

(Census 2000).

Approximately 75% of Nez Perce County's employed persons are private wage and salary workers, while around 17% are government workers (Table 3.5).

Table 3.5 Class of Worker	Nez Perce County	
	Number	Percent
Private wage and salary workers	13,439	75.3
Government workers	3,109	17.4
Self-employed workers in own not incorporated business	1,268	7.1
Unpaid family workers	40	0.2

(Census 2000)

3.2.1 European Settlement of Nez Perce County

Information summarized from Soil Survey of Lewis and Nez Perce Counties, Idaho.

The history and development of the survey area have been strongly influenced by the major rivers flowing through the area. The Snake and Clearwater Rivers provided routes of transportation through the region, and the valleys of these rivers provided suitable areas for settlement.

For centuries, the survey area has been the homeland of the Nez Perce Indians and their ancestors. They lived in the valleys, and they hunted, fished, and gathered roots and berries for food. Their major sources of food were the salmon and steelhead trout in the rivers and the camas bulbs that grew on the prairies.

The Lewis and Clark expedition traveled down the Clearwater River in 1805 on their way west. Their reports encouraged others to move to the region. In 1812 Donald MacKenzie established a fur trading post on the north bank of the Clearwater River, near present-day Lewiston. This enterprise was part of John Jacob Astor's Pacific Fur Company. The effort failed shortly after it was established. In 1836 William Craig, a mountain man and trapper, became the first non-Indian settler in Idaho. He made a claim on land in the Lapwai Creek Valley and later acted as an interpreter for the Nez Perce Indians.

Also in 1836, Henry and Eliza Spalding established a Christian mission at the mouth of Lapwai Creek. They introduced the Nez Perce people to farming in the areas of alluvial soils along the creek. In 1860 gold was discovered in the upper reaches of the Clearwater River Basin, east of the survey area. The Snake and Clearwater Rivers provided transportation routes for the influx of prospectors and miners. Lewiston was founded in 1861 at the confluence of the Snake and Clearwater Rivers as a supply post for the mining district. The deep, fertile soils and the long growing season near Lewiston allowed for the cultivation of a variety of orchard and vegetable crops.

The U.S. Army established a fort in the Lapwai Valley, south of the Spalding Mission, in 1862. In 1855 a treaty between the U.S. Government and the Nez Perce Indians established a reservation that encompassed much of northern Idaho. In 1863 another treaty reduced the size of the reservation to that of its present boundaries. Conflicts over land between the white settlers and the Indians led to the Chief Joseph War in 1877.

The accessibility of Lewiston by steamboats from Portland, Oregon, quickly established the area as a trade center for the region. Railroads from the west were extended to Genesee in 1887, and they reached Lewiston in 1892. Widespread agriculture began in the 1870's outside the Nez Perce Reservation, near Genesee and south of Lewiston. The early farmers found that the soils were very productive, and rapid settlement followed. As transportation improved and markets expanded and became more accessible, the demand for additional farmland increased.

In 1895 the land within the Nez Perce Reservation was opened to settlement by non-Indians. Most of the land on the rolling plateaus was claimed and then cultivated. Some of the land had to be cleared of timber. Sawmills were established to produce lumber for the new settlements and farms.

Nez Perce County was one of the first counties established in the Idaho Territory, and originally it included most of northern Idaho. Lewis County was formed from Nez Perce County in 1911, reducing Nez Perce County to its present boundaries.

The main industries in the survey area are in Lewiston. A large mill that produces saw timber and paper is on the Clearwater River, and it is the largest employer in the survey area. Other notable employers include an ammunition manufacturing plant, a hospital, a food processing plant, and a jet boat manufacturing plant. Lewis-Clark State College is also located in Lewiston. Tourism and recreation associated with the rivers are becoming important to the local economy. Construction of Lower Granite Dam on the Snake River in 1975 enabled oceangoing barges to reach Lewiston. This further improved the accessibility of the area to markets for lumber and agricultural products.

3.3 Description of Nez Perce County

Nez Perce County is predominantly private land (77%), but it includes some land administered by the State of Idaho (15%) and federal agencies (6%). A large part of the area is within the Nez Perce Indian Reservation.

Nez Perce County is characterized by rolling basalt plateaus dissected by deep canyons. The plateaus are mantled with deposits of loess that are tens of feet thick in places. Some of the plateaus gradually slope northward and westward toward the confluence of the Snake and Clearwater Rivers, forming an open valley around Lewiston. An extensive and rugged area of deep canyons is in the southwestern part of the survey area, between the Snake and Salmon Rivers. The area north of the Clearwater River is part of the Palouse region of the Inland Northwest. The lowest elevation in the survey area, 720 feet, is at the confluence of the Snake and Clearwater Rivers. The highest elevation, 5,360 feet, is on the western rim of Craig Mountain. Most of the survey area consists of rolling plateaus that range in elevation from 2,000 to 4,000 feet. The native vegetation is bunchgrass prairie at the lower elevations and coniferous forests in the cooler, more moist areas at the higher elevations.

3.3.1 Highways

The main highways weaving through the county are U.S. Highway 95, U.S. 12, and State Route 3. U.S. 95 is the sole route connecting northern and southern Idaho and traverses Nez Perce County from the eastern side near Culdesac, passes through Lewiston, then exits on the north

end near Genesee. U.S. Highway 12 mimics the path of the Clearwater River through the county. State Highway 3 serves as a connection for the eastern end of Nez Perce County to the remote communities of Deary, St. Maries, and eventually Coeur d' Alene to the north. Heavy recreational and large truck traffic is particularly intense during the summer and fall months.

3.3.2 Rivers

Three major rivers are in the area: the Snake River, which forms the western boundary of the area; the Clearwater River, which flows through the northern part; and the Salmon River, which forms part of the southern boundary. During the historic times and still today, these waterways served as large financial entities in Nez Perce County providing many recreational and economic resources. There are also a plethora of streams and springs providing municipal, agricultural, industrial, and recreational resources.

3.3.3 Temperature

The climate of the survey area is strongly influenced by the wide range in elevation in the area and by the surrounding topography. Considerable variations in temperature and precipitation occur within relatively short distances. In the low plateaus and valleys near Lewiston, the climate is relatively dry and mild. This mildness, particularly in winter, is a result of warm Pacific air masses and the sheltering effect of the higher plateaus that almost completely surround the valley. Air masses moving through the region tend to become warmer and drier as they descend from the higher elevations to the low plateaus and valleys. As invading air masses ascend to the higher elevations east of the valleys, they become cooler and are more likely to produce precipitation. The high plateaus are significantly cooler and more moist than the low plateaus and valleys. Most of the precipitation reaching the survey area results from strong invasions of moist air from the northern Pacific Ocean. These invasions occur most commonly in winter and spring. In summer, invasions of moist air from the west are often blocked by dry, persistent high-pressure systems that reside over the intermountain region of the western United States.

The average precipitation hits a small peak in winter, reaches a maximum in May and early in June, and then hits a distinct low point in July and August. Periodically in summer, conditions are favorable for the formation of convective rain showers and thundershowers. These showers are often scattered and of short duration, but they can nevertheless produce large amounts of precipitation in a short period of time. Thundershowers over the higher terrain tend to be more frequent and produce more rain. Winters are cold, but they generally are not too severe. Infrequent cold waves occur when arctic air originating in the Yukon Territory moves southward. The Bitterroot Chain of the Rocky Mountains, which forms the Continental Divide about 75 miles to the east, shields the region from more frequent waves of frigid arctic air. Snowfall is light and often ephemeral at the low elevations, but snow accumulates to depths of several feet and remains on the ground into May at the high elevations.

3.3.4 Recreation

Nez Perce County has many outstanding tourism and recreational facilities. The county offers a full panorama of recreational opportunities ranging from jet boating the Snake or Salmon Rivers to hunting mule deer in canyon lands to retracing the steps of the Lewis and Clark Expedition.

The economic impacts of these activities to the local economy and the economy of Idaho have not been enumerated. However, they are substantial given the many months of the year that activities take place and the large numbers of visitors that travel to this location.

3.3.4.1 Boating

Boating is a very popular activity in Nez Perce County. The Snake, Salmon, and Clearwater Rivers along with many of their tributaries offer excitement for various types of boaters and recreators during the warmer months. Boat ramps, docks, and other facilities are conveniently located at several access points along the rivers' banks.

3.3.4.2 Fishing and Hunting

Fishing and hunting is very important to Nez Perce County both from a recreational standpoint and as an economic resource. A wide variety of fish can be caught in Nez Perce County's rivers including: trout, salmon, sturgeon, steelhead, and bass. Soldier's Meadow Reservoir and Lake Waha are also popular fishing holes.

For those who prefer a gun or bow to a fly rod, Nez Perce County offers a bounty of hunting experiences. Wild birds and game, like deer, elk, bear, mountain lion, pheasant, quail, partridge, chukar, grouse, wild duck, geese, and doves are found in abundance.

3.3.5 Resource Dependency

Over the past century, employment through agricultural farming, timber harvesting and livestock ranching has been significant in the region. Livestock ranching has been and continues to be an important component of the economy of Nez Perce County. Livestock grazing in Nez Perce and surrounding Counties has provided stable employment while serving to keep rangelands and forestlands alike maintained at a lower wildfire risk than if they had not been present and managed.

Agriculture and timber processing have historically been important to Nez Perce County and the State. At present the major crops grown are soft white wheat, barley, dry peas, and lentils. Minor crops are green peas, alfalfa hay, rapeseed, canola, bluegrass seed, and oats. The forest products industry provides significant portion of the economic base for Nez Perce County due to the large Potlatch paper mill located along Clearwater River in Lewiston.

The communities of Nez Perce County have been evaluated by the University of Idaho College of Natural Resources Policy Analysis Group (PAG) for the degree of natural resource dependency each community experiences.

Idaho communities with more than 10% employment in resource-based sectors (wood products, travel & tourism, agriculture, and mining) were evaluated by Harris *et al.* (2003). Their findings indicate the following (Harris *et al.* 2000):

- Culdesac .....Travel & Tourism and Agriculture
- Lapwai.....Agriculture Only
- Lenore .....Agriculture Only
- Lewiston .....Wood Products and Travel & Tourism
- Peck .....Travel & Tourism, Agriculture, and Mining

From 1993 to 1998 sawmill capacity dropped rapidly in response to dwindling public log supplies. Only two of five dominant companies operating in 1995 were still operating in 1998, and one of these, Boise Cascade, closed two of its large sawmills during this period. In the mid-1980s Boise Cascade operated three sawmills, one plywood mill and a finishing-planer mill. Idaho closures included its Council and Horseshoe Bend sawmills. Only two facilities remained

open in 1999, the sawmill in Cascade and a plywood mill in Emmett. In the last few years, both of these mills closed, along with Croman's mill.

Similar trends are occurring elsewhere in Idaho. In north central Idaho, Potlatch Corporation's Jaype mill in Pierce closed in 2002, and its Lewiston plant has been steadily reducing employees. Other recent closings of Idaho mills have occurred in Coeur d'Alene, Boise, and Grangeville, and in Baker, Oregon (Harris *et al.* 2000).

Harris *et al.* (2003) further evaluated Idaho communities based on their level of direct employment in several industrial sectors. Their findings for communities in Nez Perce County are summarized in Table 3.6.

Table 3.6. Levels of direct employment by industrial sector

Community	Economic Diversity Index	Agriculture	Timber	Travel and Tourism	State / Local Gov.	Federal Gov.	Mining and Minerals
Culdesac	Med. Low	High	Low	Med. High	High	Low	Low
Lapwai	Med. Low	Med. High	Low	Low	Med. High	High	Low
Lenore	Low	High	Low	Low	Low	Med. High	Low
Lewiston	High	Low	Med. High	Med. High	Med. High	Low	Med. Low
Peck	Med. High	Med. High	Low	Med. High	Med. High	Low	Med. High
Spalding	Low	Low	Low	Low	Low	High	Low

A "low" level of direct employment represents 5% or less of total employment in a given sector; "med. low," 6 to 10%; "med. high" 11 to 19%; and "high" 20% or more of total employment in a given sector.

Source: Harris *et al.* 2000

3.4 Emergency Services & Planning and Zoning

Currently, the County does have Enhanced 911. The Nez Perce County Sheriff's Department is the Central Dispatch for the County. It is the goal of the County to incorporate Enhanced 911 when funding becomes available.

The Nez Perce County Planning & Zoning Commission recognizes the need for improved Road Standards. The Commission is actively researching design standards and plans to recommend that the County adopt standards for new construction that comply with the International Fire Code.

3.5 Growth and Development

Nez Perce County has recently developed a Comprehensive Growth and Development Plan. The Nez Perce County Comprehensive Plan is a guide that establishes goals and objectives to help the County grow and develop. The Nez Perce County Comprehensive Plan includes a forecast of conditions that are anticipated to occur within the next fifteen to twenty year period, 2000 to 2020.

The Nez Perce County Comprehensive Plan is directed toward all land within Nez Perce County including Federal, State, Public and Private lands. This Wildland-Urban Interface Wildfire Mitigation Plan is developed to dove-tail with the goals and objectives of the Comprehensive Plan. For more details on the Comprehensive plan, contact the Nez Perce County Director of Planning and Zoning Services.

3.5.1 Land Use Trends

In accordance with national land-use trends, Nez Perce County is experiencing large-lot residential growth in unincorporated areas. The proportion of rural to urban settlement is fairly consistent, with between 16 and 17 percent of the population living in rural areas. It should be noted that, during the 1990's populations in rural areas across the country increased in greater numbers than they did during the 1980's.

3.6 Cultural Resources

Cultural resource impacts were qualitatively assessed through a presence/absence determination of significant cultural resources and mitigation measures to be employed during potential fire mitigation activities such as thinning and prescribed fire.

The United States has a unique legal relationship with Indian tribal governments defined in history, the U.S. Constitution, treaties, statutes, Executive Orders, and court decisions. Since the formation of the union, the United States has recognized Indian tribes as domestic dependant nations under its protection. The Federal Government has enacted numerous regulations that establish and define a trust relationship with Indian tribes.

The relationship between Federal agencies and sovereign tribes is defined by several laws and regulations addressing the requirement of Federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing Federal undertakings, among these are:

- **EO 13175, November 6, 2000**, Consultation and Coordination with Indian Tribal Governments.
- **Presidential Memorandum, April, 1994**. Government-Government Relations with Tribal Governments (Supplements EO 13175). Agencies must consult with federally recognized tribes in the development of Federal Policies that have tribal implications.
- **EO 13007, Sacred sites, May 24, 1996**. Requires that in managing Federal lands, agencies must accommodate access and ceremonial use of sacred sites and must avoid adversely affecting the physical integrity of these sites.
- **EO 12875, Enhancing Intergovernmental Partnerships, October 26, 1993**. Mainly concerned with unfunded mandates caused by agency regulations. Also states the intention of establishing "regular and meaningful consultation and collaboration with state, local and tribal governments on matters that significantly or uniquely affect their communities."
- **Native American Graves Protection and Repatriation Act (NAGPRA) of 1989**. Specifies that an agency must take reasonable steps to determine whether a planned activity may result in the excavation of human remains, funerary objects, sacred objects and items of cultural patrimony from Federal lands. NAGPRA also has specified requirements for notifying and consulting tribes.
- **Archaeological Resources Protection Act (ARPA), 1979**. Requires that Federal permits be obtained before cultural resource investigations begin on Federal land. It also requires that investigators consult with the appropriate Native American tribe prior to initiating archaeological studies on sites of Native American origin.
- **American Indian Religious Freedom Act (AIRFA), 1978**. Sets the policy of the US to protect and preserve for Native Americans their inherent rights of freedom to believe, express, and exercise the traditional religions of the American Indian . . . including, but

not limited to access to sacred sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.

- **National Environmental Policy Act (NEPA), 1969**. Lead agency shall invite participation of affected Federal, State, and local agencies and any affected Indian Tribe(s).
- **National Historic Preservation Act (NHPA), 1966**. Requires agencies to consult with Native American tribes if a proposed Federal action may affect properties to which they attach religious and cultural significance. (Bulletin 38 of the act, identification of TCPs, this can only be done by tribes.)
- Treaties (supreme law of the land) in which tribes were reserved certain rights for hunting, fishing and gathering and other stipulations of the treaty.
- Unsettled aboriginal title to the land, un-extinguished rights of tribes.

3.6.1 Nez Perce Indian Reservation

The Nez Perce people belong to the Sahaptin linguistic group of Northwest Plateau Region. At one time, they occupied an area that covered North Central Idaho, Northeastern Oregon, and Southeastern Washington. The 1855 Treaty reserved most of their ancestral homelands. However, the discovery of gold in the 1860's led to the Treaty Council of 1863, and the adjustment of the boundaries of the Reservation. The Reservation was reduced by seven million acres, leaving the Nez Perce with 757,000 acres. Some of the Nez Perce (the "Non-Treaty Nez Perce") refused to sign this treaty. The government attempted to force their compliance in 1877. A war resulted ending in a surrender at Bear Paw, Montana, following a 1,700 mile, four-month fighting retreat by these Nez Perce toward Canada. The Dawes General Allotment Act of 1877 followed, whereby the remaining land was distributed within the tribe. Then in 1893, the Nez Perce were pressured into signing an agreement in which all unallotted land was declared "surplus" and sold to the Government for homesteading. The result of the Dawes Act was a Nez Perce Reservation reduced to about 86,500 acres, less than 12% of the 1863 Treaty lands. In 1948, the Nez Perce Tribe became a self-governing body under an approved constitution and by-laws. The Nez Perce Tribal Executive Committee is composed of nine members distributed geographically throughout the reservation.

3.6.2 National Register of Historic Places

The National Park Service maintains the National Register of Historical Places as a repository of information on significant cultural locale. These may be buildings, roads or trails, places where historical events took place, or other noteworthy sites. The NPS has recorded sites in its database. These sites are summarized in Table 3.7.

Table 3.7. National Register of Historic Places in Nez Perce County, Idaho.

Item Number	Resource Name	Address	City	Listed	Architect, builder, or engineer
1	American Women's League Chapter House	217 N. Main St	Peck	1986	Helfensteller,Hirsch & Watson
2	Aspoas, James, House	1610 Fifteenth Ave	Lewiston	1994	Nave, James
3	Booth, Frank, House	1608 Seventeenth Ave	Lewiston	1994	
4	Breier Building	631--633 Main St	Lewiston	1986	Nave,James H

Table 3.7. National Register of Historic Places in Nez Perce County, Idaho.

Item Number	Resource Name	Address	City	Listed	Architect, builder, or engineer
5	First Christian Church	7th Ave. and 7th St	Lewiston	1978	Hatch,Taymond W.
6	First Lapwai Bank	302 W. 1st St	Lapwai	1980	
7	First Presbyterian Church	Locust and 1st St	Lapwai	1980	Nave,J.H.
8	Fix and Moxley Building	200 block Main St	Lewiston	1977	
9	Fort Lapwai Officer's Quarters	Phinney Dr. and C St	Lapwai	1974	
10	Garfield School	2912 5th Ave	Lewiston	1982	Nave,J.H.
11	Hasotino	Restricted	Lewiston	1976	
12	Hatwai Village Site	Restricted	Lewiston	1982	
13	Hells Canyon Archeological District	Restricted	Lewiston	1984	
14	Hester, Patrick J. and Lydia, House	1622 Fifteenth Ave	Lewiston	1994	
15	Hurlbut, Harold, House	1802 Eighteenth Ave	Lewiston	1982	
16	Idaho Grocery Warehouse and Annex	1209 Main St	Lewiston	1982	Tourtellotte & Hummel, Loring,Ralph
17	JEAN (steamboat)	3620 A Snake River Ave. in Hells Gate State Park	Lewiston	1989	
18	Kettenbach, Henry C., House	1026 9th Ave	Lewiston	1978	Denny,W.H.
19	Lenore Site	Restricted	Lenore	1974	
20	Lewiston City Hall	207 3rd. St	Lewiston	1982	Loring,Ralph, Tourtellotte,John E. & Company
21	Lewiston Depot	13th and Main Sts	Lewiston	1973	
22	Lewiston Historic District	1st and 5th Sts. and B St. and the Snake River	Lewiston	1975	Cutter,Kirtland K.
23	Lewiston Methodist Church	805 6th Ave	Lewiston	1979	Black,H.N.
24	Lewiston Vineyards Gates	18th Ave. and 10th	Lewiston	1983	Loring,Ralph, Tourtellotte & Hummel
25	Lower Salmon River Archeological District	Restricted	Waha	1986	
26	McLaren, William and Elizabeth, House	1602 15th Ave	Lewiston	1992	Nave,James
27	McLaren, William, House	1602 Fifteenth Ave	Lewiston	1982	
28	Nave Apartments	600 block of 8th St	Lewiston	1978	Nave,James H.
29	Nez Perce Snake River Archeological District	Restricted	Lewiston	1978	
30	Spalding		Spalding	1974	
31	St. Stanislaus Catholic Church	633 5th Ave	Lewiston	1978	Dubray Bros., Nave,James H.
32	Tamblyn, Agnes M., House	1506 Seventeenth Ave	Lewiston	1994	Nave, James
33	Thompson, Gaylord, House	1824 Seventeenth Ave	Lewiston	1992	Chaffee,C.B., Nave,James

Table 3.7. National Register of Historic Places in Nez Perce County, Idaho.					
Item Number	Resource Name	Address	City	Listed	Architect, builder, or engineer
34	Twenty-One Ranchhouse	S of Lewiston at 7570 Waha Rd	Lewiston	1978	
35	Wyatt, W. R. and Louisa E., House	1524 Eighteenth Ave	Lewiston	1994	

(NRHP 2003)

Fire mitigation activities in and around these sites has the potential to affect historic places. In all cases, the fire mitigation work will be intended to reduce the potential of damaging the site due to wildfire. Areas where ground disturbance will occur will need to be inventoried depending on the location. Such actions may include, but are not limited to, constructed firelines (handline, mechanical line, etc.), new roads to creeks to fill water tankers, mechanical treatments, etc. Only those burn acres that may impact cultural resources that are sensitive to burning (i.e., buildings, peeled bark trees, etc.) would be examined. Burns over lithic sites are not expected to have an impact on those sites, as long as the fire is of low intensity and short duration. Some areas with heavy vegetation may need to be examined after the burn to locate and record any cultural resources although this is expected to be minimal. Traditional Cultural Properties (TCPs) will also need to be identified. Potential impact to TCPs will depend on what values make the property important and will be assessed on an individual basis.

3.7 Transportation

Transportation has consistently been a primary focus of Nez Perce County. Today, the County has nearly $100 million invested in County roadways. The Nez Perce county Road & Bridge Department has an annual operating budget of nearly $4 to $5 million. Currently, the county maintains 594 total miles of road (162 miles of paved road, 422 miles of gravel road, and 10 miles of earth road) and 32 bridges. There are 6,000 to 7,000 road signs, and approximately 3,000 to 4,000 culverts. As Nez Perce County grows, planning for expansion of the County's transportation network is essential. Planning will ensure that the level of mobility available in the County continues to improve. Nez Perce County has developed the Nez Perce County Transportation Master Plan (2004-2024) to plan a safe, efficient, continuous, coordinated, and convenient multi-model transportation system that serves the needs of the County now and establishes the foundation for a transportation system that will serve future generations. The Board of County Commissioners is responsible for all county roadways. The Commissioners appoint the Road Director for the Road & Bridge Department. The Road Director manages the road and maintenance crews and reports to the Commissioners.

Primary access to and from Nez Perce County is provided by US 95, a two-lane highway which traverses the county from the eastern side (near Culdesac), through Lewiston, then exits the county on the north side near Genesee. This access is the only primary route connecting north and south Idaho. U.S. Highway 12, part of the Lewis and Clark Trail, travels along the Clearwater River to Lewiston, then continues westward along the Snake River. State Highway 3 is a narrow and windy two lane highway connecting communities along the Clearwater River to the forested regions and remote communities in Latah and Benewah Counties and eventually to Interstate 90. Although this path is relatively well- maintained, emergency evacuation along this route could potentially be dangerous due to the slower nature of travel, sharp corners, and the forest fuels.

Smaller roads maintained by the County, the Forest Service, or private entities provide access to the adjoining areas within the county, including the communities of Waha and Webb. A variety of trails and limited-access roads are to be found throughout the region.

Almost all of the roads in the county were originally built to facilitate logging and farming activities. As such, these roads can support timber harvesting equipment, logging trucks, and fire fighting equipment referenced in this document. However, many of the new roads have been built for home site access, especially for new sub-divisions. In most cases, these roads are adequate to facilitate firefighting equipment as they adhere to County Building Codes. County building codes for new developments should be adhered to closely to insure this tendency continues.

Transportation networks in the county have been challenged by a number of communities with only one, two, or three access points suitable for use during an emergency. The community of Waha is a prime example. Other communities that may be at risk because of limited access include Peck and Lenore.

3.8 Vegetation & Climate

Vegetation in Nez Perce County is a mix of forestland and rangeland ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the forest vegetation of the area. The full extent of the county was evaluated for cover type as determined from Landsat 7 ETM+ imagery in tabular format.

The most represented vegetated cover type is a agricultural land at approximately 38% of the County's total area. The next most common vegetation cover type represented is a ponderosa pine forest at 13% of the total area. Foothils grassland is the third most common plant cover type at 11%. Mixed mesic forests represent approximately 5% of the total. None of the remaining ground cover types total in excess of 4% in any one category (Table 3.8).

Table 3.8. Cover Types in Nez Perce County	**Acres**	**Percent of County's Total Area**
Agricultural Land	207,296	38%
Ponderosa Pine	70,640	13%
Foothills Grassland	60,773	11%
Mixed Mesic Forest	28,026	5%
Disturbed Grassland	23,550	4%
Warm Mesic Shrubs	22,383	4%
Douglas-fir	15,264	3%
Exposed Rock	13,988	3%
Mixed Xeric Forest	13,970	3%
Curlleaf Mountain Mahogany	12,733	2%
Douglas-fir/Grand Fir	11,812	2%
Western Red Cedar/Grand Fir Forest	10,260	2%
Urban	9,866	2%
Montane Parklands and Subalpine Meadow	9,865	2%
Grand Fir	7,105	1%
Cloud	4,521	1%
Water	4,277	1%
Shrub Dominated Riparian	3,933	1%

Table 3.8. Cover Types in Nez Perce County	Acres	Percent of County's Total Area
Lodgepole Pine	3,796	1%
Graminiod or Forb Dominated Riparian	3,267	1%
Western Red Cedar	3,238	1%
Cloud Shadow	2,796	1%
Needleleaf/Broadleaf Dominated Riparia	1,561	0%
Mixed Barren Land	819	0%
Needleleaf Dominated Riparian	375	0%
Mixed Needleleaf/Broadleaf Forest	262	0%
Douglas-fir/Lodgepole Pine	224	0%
Mixed Riparian (Forest and Non-Forest)	104	0%
Cottonwood	18	0%
Broadleaf Dominated Riparian	13	0%
Mixed Non-forest Riparian	7	0%
Western Larch	4	0%
Western Red Cedar/Western Hemlock	0	0%

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainages. Ample precipitation and soil conditions result in a relatively well vegetated environment. As moisture availability increases, so does the abundance of conifer species.

3.8.1 Forests

The harvest of timber and other products from forestland in Nez Perce County is important to the local economy. Continuation of harvest operations, thinning, and other silvicultural practices ensures the safety and improves the health and diversity of the land. Much of Nez Perce County's forested area is being used under a multiple use concept such as timber production, livestock grazing, wildlife habitat, recreation, and watershed protection. Certain areas, classified as critical, have been set aside for a specific use and should continue to be managed for that use.

3.8.2 Agriculture

Agriculture is the backbone of the economy of the survey area. The area produces one of the highest amounts of non-irrigated wheat of any area in Idaho. Farming in the area began when Lewiston was established in the early 1860's. The mild climate allowed for a variety of produce crops to be grown to supply the gold-mining districts. Early settlers arrived in the 1860's and 1870's in the areas outside the Nez Perce Indian Reservation. At first, they typically raised livestock and cultivated only enough land to produce vegetables and grain for the needs of their own family. When outside markets for wheat improved and became more accessible, the steeper hillsides were cultivated and wheat became a cash crop. More land was cultivated when horses were replaced by mechanized equipment and land was no longer needed for hay and pasture.

When the Nez Perce Reservation was opened to settlement in 1895, the acreage of cultivated land in the area greatly increased. Almost every quarter section of land had one claimant. The Camas Prairie was settled quickly, and it became a prosperous wheat-growing area. By the

early 1900s, the land around Lewiston had become an important fruit-growing area. An irrigation system was built on the low plateau just south of Lewiston, now known as the Lewiston Orchards. The main fruits grown were apples, pears, cherries, and apricots. Of minor importance were prunes, plums, peaches, and various berries. Some nuts and vegetables were also grown. As the city grew, the orchards were replaced by suburban homes, small pastures, and gardens. At present only a few commercial orchards remain.

Livestock operations are an important industry in Nez Perce County. Sheep were dominant in the early days, but now beef cattle, primarily cow-calf operations, are dominant. At present the major crops grown are soft white wheat, barley, dry peas, and lentils. Minor crops are green peas, alfalfa hay, rapeseed, canola, bluegrass seed, and oats. Most of the grain is shipped by barge to Portland, where much is then exported. Green peas are processed at a frozen food plant in Lewiston.

3.8.3 Monthly Climate Summaries In or Near Nez Perce County

3.8.3.1 Lewiston, Idaho (105241)

Period of Record Monthly Climate Summary

Period of Record : 8/ 1/1948 to 3/31/2004

Table 3.9 Climate records for Lewiston, Idaho (Nez Perce County).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	39.3	46.2	53.7	62.0	70.8	78.8	89.0	87.9	77.9	62.9	47.9	40.6	63.1
Average Min. Temperature (F)	26.7	30.7	34.4	39.6	46.4	53.1	58.8	58.1	50.3	40.8	33.5	28.6	41.7
Average Total Precipitation (in.)	1.25	0.90	1.08	1.21	1.47	1.37	0.62	0.71	0.77	0.99	1.18	1.14	12.69
Average Total SnowFall (in.)	5.8	2.6	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.7	4.1	15.8
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 100% Min. Temp.: 100% Precipitation: 100% Snowfall: 91% Snow Depth: 90.9%

3.8.3.2 Winchester, Idaho (109846)

Period of Record Monthly Climate Summary

Period of Record 7/ 1/1965 to 3/31/2004

Table 3.10 Climate records for Winchester, Idaho (Lewis County).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	34.9	39.3	44.4	51.2	59.6	67.1	76.6	77.7	68.5	56.3	41.9	34.8	54.4
Average Min. Temperature (F)	19.6	21.9	25.5	30.5	36.5	42.2	45.9	45.5	39.3	32.4	25.8	19.7	32.1
Average Total Precipitation (in.)	2.14	1.66	2.44	2.75	2.94	2.15	1.29	1.18	1.44	1.93	2.35	1.99	24.24
Average Total	20.0	13.5	16.2	9.8	2.3	0.2	0.0	0.0	0.2	2.1	12.9	18.2	95.5

Table 3.10 Climate records for Winchester, Idaho (Lewis County).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
SnowFall (in.)													
Average Snow Depth (in.)	7	6	3	0	0	0	0	0	0	0	1	4	2

Percent of possible observations for period of record. Max. Temp.: 99.4% Min. Temp.: 99.4% Precipitation: 99.4% Snowfall: 99% Snow Depth: 98.1%

3.9 Wildfire Hazard Profiles

3.9.1 Wildfire Ignition Profile

Fire was once an integral function of the majority of ecosystems in Idaho. The seasonal cycling of fire across the landscape was as regular as the July, August and September lightning storms plying across the canyons and mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition (Johnson 1998). The fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals (Barrett 1979). With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age (Johnson *et al.* 1994). Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years (Steele *et al.* 1986, Agee 1993).

Detailed records of fire ignition and extent have been compiled by the Idaho Department of Lands keeps records of fire ignitions dating back to 1983. Using this data on past fire extents and fire ignition data, the occurrence of wildland fires in the region of Nez Perce County has been evaluated.

The following (Table 3.16) is a summary of fire ignitions within Nez Perce County as recorded by the Idaho Department of Lands for the period 1983-2002.

Many fires have burned in the region of Nez Perce County (Table 3.11). Figures 3.1 & 3.2 summarize fire ignitions and acres burned by 5-year periods (1983-2002). There were approximately 283 fire ignitions during this 20 year period, with the highest number of total ignitions occurring over the past decade (1983-1992), Figure 3.1. Concurrently, the total acres burned during this former period also peaked with 1,685 acres burned 1983-1987, and 5,056 acres burned 1988-1992 (Figure 3.2). A decrease in lightning ignited fires coincided with an slight decrease in human caused ignitions during the 20-year period.

The average number of acres burned each 5-year period since 1983 has been approximately 7.0 acres, with the largest just over 900 acres (Lotus Point Fire-2002).

Figure 3.1. Nez Perce County Wildfire Ignition Profile.

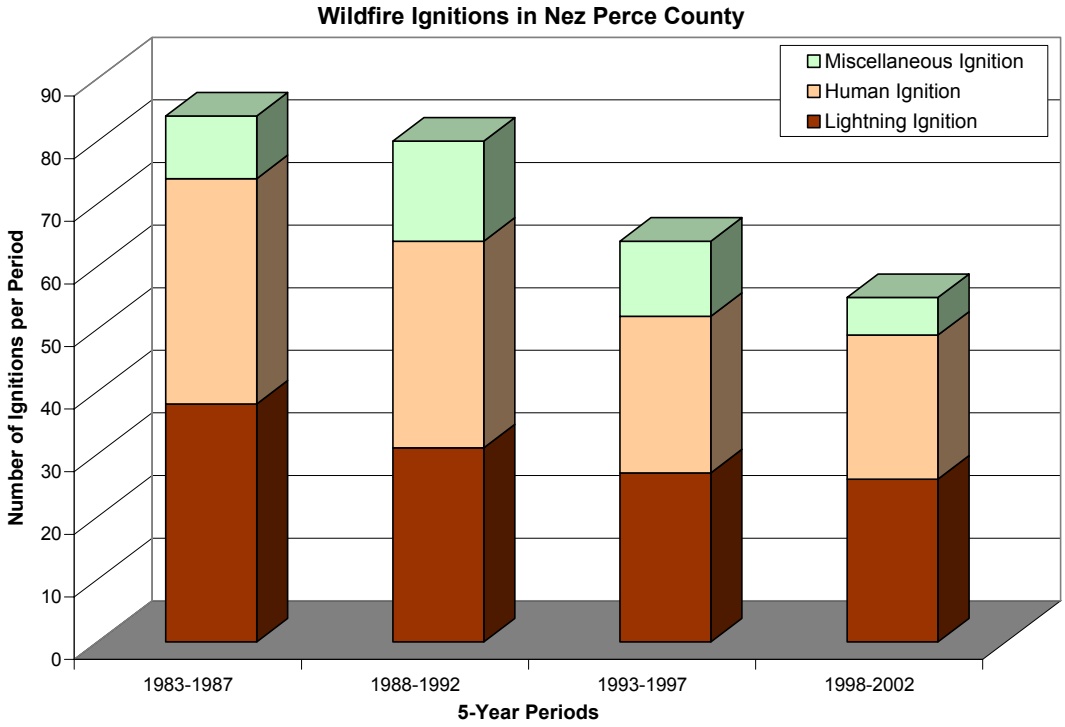


Figure 3.2. Nez Perce County Wildfire Extent Profile

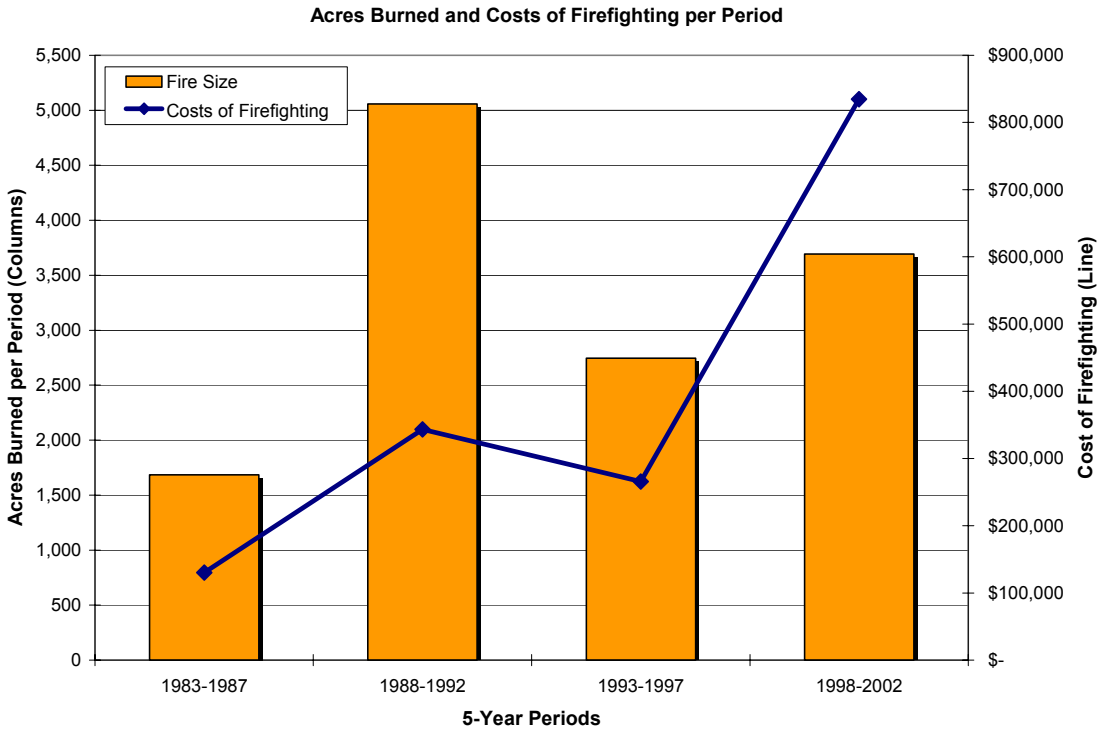


Table 3.11. Number of wildfire ignitions (profile) by 5-year period 1983-2002.

	1983-1987	1988-1992	1993-1997	1998-2002
Lightning Ignition	38	31	27	26
Human Ignition	36	33	25	23
Miscellaneous Ignition	10	16	12	6
Total Acres Burned	1,685	5,056	2,746	3,693

Since 1983, it would appear that roughly 43% of all fires in the County have been ignited by nature, while the remaining 57%, on average have been human caused (including miscellaneous causes). The data would seem to indicate that the total number of ignitions in Nez Perce County decreased through the 1993-2002 period; however, the total number of acres burned has increased since the 1983-1987 period.

Table 3.12. Wildfire Ignitions by Cause in Nez Perce County by cause.

Cause	Cause Reference	1983-2002[1] Occurrence	Percent
Lightning	1	122	43.1
Campfire	2	15	5.3
Smoking	3	3	1.1
Debris Burning	4	45	15.9
Arson	5	8	2.8
Equipment Use	6	33	11.7
Railroad	7	8	2.8
Children	8	5	1.8
Miscellaneous	9	44	15.5

[1] Data provided by the Idaho Department of Lands.

3.9.2 Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. The National Interagency Fire Center (2003) reports nearly 88,500 wildfires in 2002 burned a total of nearly 7 million acres and cost $1.6 billion (Table 3.13). By most informed accounts, the 2003 totals will be significantly higher in terms of acres burned and cost.

Table 3.13. National Fire Season 2002 Summary

Number of Fires (2002 final)	88,458
10-year Average (1992-2001)	103,112
Acres Burned (2002 final)	*** 6,937,584**
10-year Average (1992-2001)	4,215,089
Structures Burned (835 primary residences, 46 Commercial buildings, 1500 outbuildings)	2,381
Estimated Cost of Fire Suppression (Federal agencies only)	$ 1.6 billion

- *This figure differs from the 7,184,712 acres burned estimate provided by the National Interagency Coordination Center (NICC). The NICC estimate is based on information contained in geographic area and incident situation reports prepared at the time fires occurred. The 6,937,584 estimate is based on agency end-of-year reports.*

The National Interagency Fire Center, located in Boise, Idaho, maintains records of fire costs, extent, and related data for the entire nation. Tables 3.14 and 3.15 summarize some of the relevant wildland fire data for the nation, and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained in areas like Nez Perce County.

Table 3.14. Total Fires and Acres 1960 - 2002 Nationally.

These figures are based on end-of-year reports compiled by all wildland fire agencies after each fire season, and are updated by March of each year. The agencies include: Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service, USDA Forest Service and all State Lands.

Year	Fires	Acres	Year	Fires	Acres
2002	88,458	*** 6,937,584**	1980	234,892	5,260,825
2001	84,079	3,555,138	1979	163,196	2,986,826
2000	122,827	8,422,237	1978	218,842	3,910,913
1999	93,702	5,661,976	1977	173,998	3,152,644
1998	81,043	2,329,709	1976	241,699	5,109,926
1997	89,517	3,672,616	1975	134,872	1,791,327
1996	115,025	6,701,390	1974	145,868	2,879,095
1995	130,019	2,315,730	1973	117,957	1,915,273
1994	114,049	4,724,014	1972	124,554	2,641,166
1993	97,031	2,310,420	1971	108,398	4,278,472
1992	103,830	2,457,665	1970	121,736	3,278,565
1991	116,953	2,237,714	1969	113,351	6,689,081
1990	122,763	5,452,874	1968	125,371	4,231,996
1989	121,714	3,261,732	1967	125,025	4,658,586
1988	154,573	7,398,889	1966	122,500	4,574,389
1987	143,877	4,152,575	1965	113,684	2,652,112
1986	139,980	3,308,133	1964	116,358	4,197,309
1985	133,840	4,434,748	1963	164,183	7,120,768
1984	118,636	2,266,134	1962	115,345	4,078,894
1983	161,649	5,080,553	1961	98,517	3,036,219
1982	174,755	2,382,036	1960	103,387	4,478,188
1981	249,370	4,814,206		(National Interagency Fire Center 2003)	

Table 3.15. Suppression Costs for Federal Agencies Nationally.

Year	BLM	BIA	FWS	NPS	USFS	Totals
1994	$98,417,000	$49,202,000	$3,281,000	$16,362,000	$678,000,000	**$845,262,000**
1995	$56,600,000	$36,219,000	$1,675,000	$21,256,000	$224,300,000	**$340,050,000**
1996	$96,854,000	$40,779,000	$2,600	$19,832,000	$521,700,000	**$679,167,600**
1997	$62,470,000	$30,916,000	$2,000	$6,844,000	$155,768,000	**$256,000,000**
1998	$63,177,000	$27,366,000	$3,800,000	$19,183,000	$215,000,000	**$328,526,000**
1999	$85,724,000	$42,183,000	$4,500,000	$30,061,000	$361,000,000	**$523,468,000**
2000	$180,567,000	$93,042,000	$9,417,000	$53,341,000	$1,026,000,000	**$1,362,367,000**
2001	$192,115,00	$63,200,000	$7,160,000	$48,092,000	$607,233,000	**$917,800,000**
2002	$204,666,000	$109,035,000	$15,245,000	$66,094,000	$1,266,274,000	**$1,661,314,000**

(National Interagency Fire Center 2003)

Although many very large fires, growing to over 250,000 acres have burned in the Idaho Panhandle, which Nez Perce County is a part, actual fires in this county have usually been controlled at much smaller extents. This is not to imply that wildfires are not a concern in this county, but to point to the aggressive and professional manner to which the wildland and rural fire districts cooperate in controlling these blazes. The Idaho Department of Lands provides primary wildfire protection in Nez Perce County in cooperation with the Nez Perce Tribe's wildfire protection taking the lead within the Reservation boundary. The IDL and the Nez Perce Tribe cooperate through Mutual Aid Agreements. Six rural and city fire districts augment these services with home protection and related services.

Data on large fire events that burned within Nez Perce County are summarized here dating back to the 19th and 20th century: this data is provided in an effort to describe historic fire occurrence and extent. While some of these fires were centered outside of Nez Perce County, all of the listed fires burned within close proximity to the county. On average, historic wildfires in Nez Perce County have reached a size of 3,900 acres. However, it is important to note that this average includes some very large fires from the 1800's and the 1910 fire season which was substantial and may not reflect the suppression capabilities existing today. In fact, the fire occurrence in recent history (1983-present) shows very few fires growing to a large size. This is not to say that wildfires are no longer a threat in Nez Perce County, which they are, but to point out that continued accumulations of fuels may place Nez Perce County at increased risk over those counties in the region which have experienced recent fires.

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
BILLY CREEK	Craig Mountain FPD	1983	5	Idaho Fish & Game	Lightning	Lightning	$ 1,962
BOBCAT FIRE	Craig Mountain FPD	1983	21	Idaho Fish & Game	Arson	Fireworks	$ 586
FIRECRACKER	Ponderosa FPD	1983	2	Idaho Department of Transportation	Miscellaneous	Fireworks	$ 57
FLAT IRON CREEK FIRE	Craig Mountain FPD	1983	0.1	Private Property	Lightning	Lightning	$ 352
HOT HIVE FIRE	Ponderosa FPD	1983	8	Burlington Northern Railroad	Railroad	Railroad, No Further Breakdown	$ 113
HOWARD RIDGE	Ponderosa FPD	1983	0.5	Nez Perce Tribe	Lightning	Lightning	$ 161
PRUITT RIDGE	Craig Mountain FPD	1983	11	Private Property	Lightning	Lightning	$ 7,101
RABBIT HUTCH	Ponderosa FPD	1983	0.1	Private Property	Miscellaneous	Miscellaneous, No Further Breakdown	$ 901
SPALDING FIRE	Craig Mountain FPD	1983	0.1	Private Property	Lightning	Lightning	$ 267
STAR THISTLE	Ponderosa FPD	1983	8	County Lands	Smoking	Smoking, No Further Breakdown	$ 198

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
STAR THISTLE	Ponderosa FPD	1983	100	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 194
STAR THISTLE	Craig Mountain FPD	1983	290	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 191
TRESTLE FIRE	Craig Mountain FPD	1983	20	Private Property	Railroad	Railroad, No Further Breakdown	$ 444
AMOS BENCH - SLASH PILE	Craig Mountain FPD	1984	10	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 4,422
AMOS BENCH #2	Craig Mountain FPD	1984	0.1	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 452
BENTON MEADOWS	Craig Mountain FPD	1984	0.1	Potlach Corporation	Lightning	Lightning	$ 714
BIG CANYON	Craig Mountain FPD	1984	0.1	Private Property	Equipment Use	Burning Vehicle	$ 87
BUZZARD'S ROOST	Craig Mountain FPD	1984	8	Bureau Of Land Management	Campfire	Campfire, No Further Breakdown	$ 334
CABIN FIRE	Craig Mountain FPD	1984	15	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 2,885
CORRAL CREEK	Craig Mountain FPD	1984	0.1	Private Property	Lightning	Lightning	$ 1,218
COTTONWOOD CREEK	Craig Mountain FPD	1984	347	Private Property	Debris Burning	Slash Burning, Prescribed	$ 39,291
CULDESAC	Craig Mountain FPD	1984	3	Nez Perce Tribe	Lightning	Lightning	$ 52
DEER CREEK FALLS	Craig Mountain FPD	1984	0.1	Potlach Corporation	Lightning	Lightning	$ 1,080
EAGLE CREEK JUNCTION	Craig Mountain FPD	1984	0.1	Private Property	Lightning	Lightning	$ 179
FRYE POINT	Craig Mountain FPD	1984	0.1	Private Property	Lightning	Lightning	$ 426
GERMAN SETTLEMENT	Craig Mountain FPD	1984	0.1	Private Property	Miscellaneous	Broken Powerline, Tree Across Line	$ 88
KETTENBACH GRADE FIRE	Craig Mountain FPD	1984	49	Private Property	Equipment Use	Exhaust System, Catalytic Converters	$ 387
LAKE CREEK	Craig	1984	10	Potlach	Debris	Debris Burning,	$ 540

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	Mountain FPD			Corporation	Burning	No Further Breakdown	
LAPWAI VALLEY	Craig Mountain FPD	1984	35	Private Property	Lightning	Lightning	$ 139
LOWER MCCORMACK RIDGE	Craig Mountain FPD	1984	15	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 102
LYLE GULCH	Craig Mountain FPD	1984	20	Private Property	Lightning	Lightning	$ 157
MULTIPLE GATE	Craig Mountain FPD	1984	0.1	Bennett Lumber Products	Lightning	Lightning	$ 431
MYRTLE FIRE	Craig Mountain FPD	1984	2	Private Property	Miscellaneous	Broken Powerline, Tree Across Line	$ 468
PEA FIELD	Craig Mountain FPD	1984	0.1	Private Property	Lightning	Lightning	$ 103
RATTLESNAKE FIRE	Ponderosa FPD	1984	120	Private Property	Miscellaneous	Fireworks	$ 272
SCABPATCH	Craig Mountain FPD	1984	0.1	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 55
SHORT RUN	Ponderosa FPD	1984	2	Private Property	Lightning	Lightning	$ 37
SOUTH FORK TOM BEALL CR	Craig Mountain FPD	1984	78	Private Property	Equipment Use	Exhaust, Off Road ATV, Motorcycles	$ 183
TWO PILE FIRE	Craig Mountain FPD	1984	0.1	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 512
WOODCUTTERS FIRE	Craig Mountain FPD	1984	0.1	State Of Idaho	Campfire	Campfire, No Further Breakdown	$ 118
AMOS BENCH	Craig Mountain FPD	1985	35	Private Property	Lightning	Lightning	$ 3,368
BROWNS CREEK	Craig Mountain FPD	1985	0.1	Private Property	Lightning	Lightning	$ 298
BROWN'S CREEK #2	Craig Mountain FPD	1985	0.1	Private Property	Lightning	Lightning	$ 677
EAGLE CREEK	Craig Mountain FPD	1985	0.1	State Of Idaho	Lightning	Lightning	$ 1,612
EAGLE CREEK CABIN	Craig Mountain FPD	1985	0.1	Private Property	Campfire	Campfire, No Further Breakdown	$ 188
GEORGE GRADE	Craig	1985	1	Private Property	Lightning	Lightning	$ 176

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	Mountain FPD						
PILOT ROCK	Ponderosa FPD	1985	0.1	Private Property	Lightning	Lightning	$ 569
PINE TREE FIRE	Craig Mountain FPD	1985	0.1	Private Property	Lightning	Lightning	$ 128
SIX MILE CANYON	Craig Mountain FPD	1985	0.1	Private Property	Lightning	Lightning	$ 200
STAR MILL CREEK	Craig Mountain FPD	1985	6	Nez Perce Tribe	Smoking	Smoking	$ 468
SWAMP CREEK	Craig Mountain FPD	1985	1	Private Property	Lightning	Lightning	$ 776
WAHA MOBILE HOME	Craig Mountain FPD	1985	0.1	Private Property	Miscellaneous	Electric Fence	$ 44
WEST FORK DEER CREEK	Craig Mountain FPD	1985	0.1	Private Property	Lightning	Lightning	$ 894
WINCHESTER GRADE	Craig Mountain FPD	1985	2	Private Property	Lightning	Lightning	$ 597
ZENNER MEADOWS	Craig Mountain FPD	1985	2	Private Property	Lightning	Lightning	$ 1,708
ANGEL RIDGE #1	Craig Mountain FPD	1986	4	Private Property	Lightning	Lightning	$ 696
ANGEL RIDGE #2	Craig Mountain FPD	1986	0.1	Private Property	Lightning	Lightning	$ 199
BED ROCK	Ponderosa FPD	1986	0.1	Private Property	Lightning	Lightning	$ 99
BIG CANYON	Maggie Creek FPD	1986	300	Private Property	Lightning	Lightning	$ 15,861
CEDAR CREEK	Ponderosa FPD	1986	1	Private Property	Lightning	Lightning	$ 2,298
FIELD	Craig Mountain FPD	1986	0.1	Private Property	Lightning	Lightning	$ 93
HARPERS BEND	Craig Mountain FPD	1986	0.1	Idaho Department of Transportation	Equipment Use	Vehicle Collision	$ 591
HOLDOVER PILE	Craig Mountain FPD	1986	0.1	Private Property	Debris Burning	Slash Burning, Prescribed	$ 228
JUMPIN JACK	Ponderosa FPD	1986	2	Private Property	Children	Playing With Fireworks	$ 116

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
LITTLE MYRTLE	Craig Mountain FPD	1986	64	Bureau Of Land Management	Arson	Fireworks	$ 15,694
LITTLE PILE	Craig Mountain FPD	1986	0.1	Private Property	Debris Burning	Slash Burning, Prescribed	$ 140
NEW MELROSE GRADE	Craig Mountain FPD	1986	0.1	Private Property	Lightning	Lightning	$ 92
PICKLE CANYON	Craig Mountain FPD	1986	20	Private Property	Debris Burning	Field Burning, Prescribed	$ 3,437
SWEETWATER	Ponderosa FPD	1986	0.1	Private Property	Campfire	Campfire, No Further Breakdown	$ 1,315
SWEETWATER	Craig Mountain FPD	1986	0.1	Private Property	Campfire	Campfire, No Further Breakdown	$ 1,315
UPPER JACKS CREEK	Craig Mountain FPD	1986	10	Private Property	Equipment Use	Burning Vehicle	$ 1,241
WAPSHILLA RIDGE	Craig Mountain FPD	1986	4	Private Property	Lightning	Lightning	$ 4,405
WEST FORK OF DEER CREEK	Craig Mountain FPD	1986	0.1	Private Property	Lightning	Lightning	$ 136
YELLOW JACKET	Craig Mountain FPD	1986	35	Private Property	Equipment Use	Exhaust System, Catalytic Converters	$ 691
BEDROCK	Ponderosa FPD	1987	2	Nez Perce Tribe	Miscellaneous	Broken Powerline, Tree Across Line	$ 331
CHERRY LANE	Craig Mountain FPD	1987	0.1	State Of Idaho	Miscellaneous	Miscellaneous, No Further Breakdown	$ 88
CULDESAC HILL	Craig Mountain FPD	1987	0.1	Private Property	Miscellaneous	Miscellaneous, No Further Breakdown	$ 111
OLD CULDESAC GRADE	Craig Mountain FPD	1987	0.1	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 477
PICKLE CANYON	Craig Mountain FPD	1987	3	Private Property	Equipment Use	Electric Fence	$ 272
ROCK CREEK	Craig Mountain FPD	1987	5	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 119
SPRINKLER	Craig Mountain FPD	1987	0.1	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 22
TIRE	Craig	1987	0.1	Idaho	Miscellaneous	Vehicle, Brakes	$ 162

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	Mountain FPD			Department of Transportation			
UPPER JACK'S CREEK	Craig Mountain FPD	1987	4	Private Property	Arson	Arson, No Further Breakdown	$ 615
WEBB RIDGE	Craig Mountain FPD	1987	0.1	Bennett Lumber Products	Lightning	Lightning	$ 421
BLUFF	Craig Mountain FPD	1988	0.5	State Of Idaho	Lightning	Lightning	$ 224
BULLFROG	Craig Mountain FPD	1988	0.2	Bennett Lumber Products	Children	Fireworks	$ 1,141
CAMP 53	Craig Mountain FPD	1988	1.5	Nez Perce Tribe	Lightning	Lightning	$ 3,824
LARABEE MEADOWS	Craig Mountain FPD	1988	1	Private Property	Campfire	Campfire, No Further Breakdown	$ 2,035
MANY STRIKES	Craig Mountain FPD	1988	0.1	Nez Perce Tribe	Lightning	Lightning	$ 153
MELROSE	Craig Mountain FPD	1988	45	Nez Perce Tribe	Equipment Use	Exhaust System, Catalytic Converters	$ 261
OVERKILL	Craig Mountain FPD	1988	0.1	Private Property	Lightning	Lightning	$ 142
ROCK CREEK	Craig Mountain FPD	1988	35	Private Property	Equipment Use	Exhaust System, Catalytic Converters	$ 1,931
SUNNYSIDE	Ponderosa FPD	1988	3	Private Property	Arson	Miscellaneous, No Further Breakdown	$ 305
SWEETWATER	Craig Mountain FPD	1988	35	Nez Perce Tribe	Debris Burning	Trash Burning, Piles Or Yard	$ 128
TOO EARLY	Craig Mountain FPD	1988	0.1	Nez Perce Tribe	Lightning	Lightning	$ 125
ZENNER MEADOWS	Craig Mountain FPD	1988	0.1	Private Property	Debris Burning	Slash Burning, Prescribed	$ 513
ANGEL RIDGE	Craig Mountain FPD	1989	0.1	Private Property	Lightning	Lightning	$ 159
BENTON MEADOWS	Craig Mountain FPD	1989	0.1	Private Property	Lightning	Lightning	$ 1,002
CENTRAL RIDGE	Maggie Creek FPD	1989	6	Private Property	Lightning	Lightning	$ 5,839

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
CHIMNEY CREEK	Craig Mountain FPD	1989	50	State Of Idaho	Lightning	Lightning	$ 90,317
COTTONWOOD CREEK	Craig Mountain FPD	1989	311	Private Property	Miscellaneous	Miscellaneous, No Further Breakdown	$ 336
GOLDNER ROAD	Craig Mountain FPD	1989	220	Private Property	Children	Fireworks	$ 1,484
HOWARD RIDGE	Ponderosa FPD	1989	181	Private Property	Miscellaneous	Miscellaneous, No Further Breakdown	$ 963
IRON CREEK	Craig Mountain FPD	1989	0.1	Nez Perce Tribe	Lightning	Lightning	$ 408
LAPWAI	Craig Mountain FPD	1989	115	Private Property	Lightning	Lightning	$ 92
LARABEE ROAD	Craig Mountain FPD	1989	0.1	Nez Perce Tribe	Lightning	Lightning	$ 297
LENORE	Craig Mountain FPD	1989	0.1	Private Property	Lightning	Lightning	$ 71
MC CORMICK RIDGE	Craig Mountain FPD	1989	20	Private Property	Lightning	Lightning	$ 540
MISSION CREEK	Craig Mountain FPD	1989	0.1	Private Property	Lightning	Lightning	$ 1,005
RED BIRD	Craig Mountain FPD	1989	0.1	Private Property	Miscellaneous	Miscellaneous, No Further Breakdown	$ 151
STONEY POINT	Ponderosa FPD	1989	70	Private Property	Lightning	Lightning	$ 8,954
SUNNYSIDE	Ponderosa FPD	1989	80	U.S. Forest Service	Debris Burning	Slash Burning, Prescribed	$ 483
ANGEL RIDGE	Craig Mountain FPD	1990	0.1	Private Property	Miscellaneous	Powerline, Insulator, Transformers, Arc	$ 319
BIG CANYON RIDGE	Craig Mountain FPD	1990	30	Private Property	Campfire	Campfire, No Further Breakdown	$ 1,975
BILLY CREEK I	Craig Mountain FPD	1990	0.5	Idaho Fish & Game	Lightning	Lightning	$ 988
BILLY CREEK II	Craig Mountain FPD	1990	0.1	Bureau Of Land Management	Lightning	Lightning	$ 1,996
CHERRYLANE	Ponderosa FPD	1990	550	Camas Prairie Railroad	Railroad	Exhaust System, Catalytic	$ 16,828

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
						Converters	
COTTONWOOD CREEK	Ponderosa FPD	1990	1	Private Property	Miscellaneous	Fireworks	$ 804
COTTONWOOD CREEK	Craig Mountain FPD	1990	20	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 138
CULDESAC	Craig Mountain FPD	1990	1	Private Property	Debris Burning	Trash Burning, Piles Or Yard	$ 84
DEER CREEK	Craig Mountain FPD	1990	0.5	Private Property	Lightning	Lightning	$ 1,619
JACQUES SPUR	Craig Mountain FPD	1990	0.1	Private Property	Miscellaneous	Equipment Use, No Further Breakdown	$ 83
LAPWAI	Craig Mountain FPD	1990	170	Nez Perce Tribe	Debris Burning	Debris Burning, No Further Breakdown	$ 4,226
LOST CATS	Craig Mountain FPD	1990	0.1	Nez Perce Tribe	Miscellaneous	Burning Vehicle	$ 38
MCCORMICK RIDGE	Craig Mountain FPD	1990	160	Private Property	Lightning	Lightning	$ 1,950
MIDDLE TOM BEALL CK	Craig Mountain FPD	1990	800	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 4,430
NEAR OLD WEBB STORE	Craig Mountain FPD	1990	25	Nez Perce Tribe	Lightning	Lightning	$ 75
NEAR STAR MILL	Craig Mountain FPD	1990	20	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 140
SWEATHOUSE	Craig Mountain FPD	1990	15	Private Property	Debris Burning	Field Burning, Prescribed	$ 250
SWEETWATER CAMP	Craig Mountain FPD	1990	0.1	Nez Perce Tribe	Campfire	Campfire, No Further Breakdown	$ 768
WAHA I	Craig Mountain FPD	1990	3.3	Private Property	Debris Burning	Slash Burning, Prescribed	$ 277
ZENNER MEADOWS	Craig Mountain FPD	1990	0.1	Private Property	Lightning	Lightning	$ 1,043
BANKS CREEK	Craig Mountain FPD	1991	1.5	Private Property	Lightning	Lightning	$ 16
BEDROCK CREEK	Ponderosa FPD	1991	396	Camas Prairie Railroad	Railroad	Train Exhaust	$ 21,372
CAPTAIN JOHN	Craig	1991	160	Idaho Fish &	Debris	Trash Burning,	$

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	Mountain FPD			Game	Burning	Piles Or Yard	10,533
CHERRYLANE	Ponderosa FPD	1991	0.1	Camas Prairie Railroad	Railroad	Railroad, No Further Breakdown	$ 190
COTTONWOOD CREEK	Craig Mountain FPD	1991	450	Private Property	Children	Curiosity With Fire	$ 25,289
COUGAR CREEK	Craig Mountain FPD	1991	120	Private Property	Lightning	Lightning	$ 23,783
DUMBO FLATS	Craig Mountain FPD	1991	25	Nez Perce Tribe	Miscellaneous	Fireworks	$ 520
EAST DENNIS	Ponderosa FPD	1991	0.3	U.S. Forest Service	Lightning	Lightning	$ 1,897
HARPERS BEND	Craig Mountain FPD	1991	0.1	State Of Idaho	Miscellaneous	Miscellaneous, No Further Breakdown	$ 41
JACKS CREEK	Craig Mountain FPD	1991	7	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 2,126
SANDER CREEK	Craig Mountain FPD	1991	52	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 1,790
SWEETWATER	Craig Mountain FPD	1991	3	Nez Perce Tribe	Miscellaneous	Structure Fire	$ 368
THE GLOW	Craig Mountain FPD	1991	1.5	Private Property	Miscellaneous	Powerline, Insulator, Transformers, Arc	$ 2,494
AMOS BENCH #1	Craig Mountain FPD	1992	0.2	Nez Perce Tribe	Lightning	Lightning	$ 90
AMOS BENCH #2	Craig Mountain FPD	1992	0.3	Nez Perce Tribe	Lightning	Lightning	$ 94
ARROW JUNCTION	Ponderosa FPD	1992	0.2	Idaho Department of Transportation	Miscellaneous	Miscellaneous, No Further Breakdown	$ 278
BLUE WAHA	Craig Mountain FPD	1992	0.2	Private Property	Arson	Arson, No Further Breakdown	$ 856
COYOTE CREEK	Craig Mountain FPD	1992	615	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 50,633
EAST FORK DEER CREEK	Craig Mountain FPD	1992	30	Nez Perce Tribe	Lightning	Lightning	$ 25,393
HIGHWAY 95 CAR FIRE	Craig Mountain	1992	0.1	Idaho Department of	Equipment Use	Burning Vehicle	$ 244

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	FPD			Transportation			
KETTENBACH GRADE	Craig Mountain FPD	1992	2	Private Property	Equipment Use	Miscellaneous, No Further Breakdown	$ 3,051
LAPWAI CANYON	Craig Mountain FPD	1992	207	Nez Perce Tribe	Miscellaneous	Fireworks	$ 811
LAPWAI CREEK	Craig Mountain FPD	1992	1.1	Nez Perce Tribe	Miscellaneous	Powerline, Insulator, Transformers, Arc	$ 892
MELROSE	Craig Mountain FPD	1992	5.5	Private Property	Smoking	Smoking, No Further Breakdown	$ 2,005
MYRTLE BEACH	Craig Mountain FPD	1992	0.3	Private Property	Campfire	Cooking Fire, Recreation	$ 171
ORE IDA	Craig Mountain FPD	1992	0.1	Private Property	Lightning	Lightning	$ 1,285
PECK	Craig Mountain FPD	1992	0.1	Private Property	Miscellaneous	Fireworks	$ -
ROLLOVER	Ponderosa FPD	1992	5	Idaho Department of Transportation	Equipment Use	Vehicle Collision	$ 681
TOMAHAWK	Craig Mountain FPD	1992	0.1	Nez Perce Tribe	Equipment Use	Equipment Use, No Further Breakdown	$ 161
WAPSHILLA 2	Craig Mountain FPD	1992	0.1	Bonneville Power Admin.	Lightning	Lightning	$ 4,406
WEBB RIDGE	Craig Mountain FPD	1992	0.3	Private Property	Miscellaneous	Equipment Use, No Further Breakdown	$ 811
WINCHESTER	Craig Mountain FPD	1992	0.1	Private Property	Lightning	Lightning	$ 148
AMOS BENCH	Craig Mountain FPD	1993	7	Nez Perce Tribe	Debris Burning	Trash Burning, Piles Or Yard	$ 2,209
BEAR BAIT	Craig Mountain FPD	1993	0.1	Nez Perce Tribe	Miscellaneous	Matches	$ 486
HARPERS BEND	Ponderosa FPD	1993	0.1	Camas Prairie Railroad	Miscellaneous	Miscellaneous, No Further Breakdown	$ 327
LOWER POTLATCH RIDGE	Ponderosa FPD	1993	0.1	Private Property	Lightning	Lightning	$ 307
MCCORMACK RIDGE	Craig Mountain	1993	0.1	Private Property	Debris Burning	Debris Burning, No Further	$ 421

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	FPD					Breakdown	
MYRTLE BEACH	Craig Mountain FPD	1993	1.2	Private Property	Debris Burning	Slash Burning, Prescribed	$ 568
STRAIGHT STRETCH	Ponderosa FPD	1993	6.5	Private Property	Debris Burning	Trash Burning, Piles Or Yard	$ 422
UPPER BEDROCK CREEK	Ponderosa FPD	1993	4	Private Property	Equipment Use	Exhaust System, Catalytic Converters	$ 474
ZAZA	Craig Mountain FPD	1993	0.3	Nez Perce Tribe	Arson	Warming Fire, Hunter Or Fishing	$ 599
AMOS BENCH	Craig Mountain FPD	1994	40	Nez Perce Tribe	Miscellaneous	Exhaust System, Catalytic Converters	$ 9,449
ARROW JUNCTION	Ponderosa FPD	1994	3	Private Property	Miscellaneous	Fireworks	$ 1,167
BEALL FIRE	Craig Mountain FPD	1994	2	Unknown Land Owner	Children	Fireworks	$ 136
BEDROCK CREEK FIRE	Ponderosa FPD	1994	47	Private Property	Lightning	Lightning	$ 11,722
BIG CANYON BEND	Maggie Creek FPD	1994	0.1	Private Property	Lightning	Lightning	$ 501
BILLY CREEK	Craig Mountain FPD	1994	0.1	Bureau Of Land Management	Lightning	Lightning	$ 1,502
CAMP TAMAHAWK	Craig Mountain FPD	1994	0.1	Nez Perce Tribe	Equipment Use	Welding, Cutting Torch	$ 316
CHERRYLANE	Ponderosa FPD	1994	10	Private Property	Debris Burning	Trash Burning, Piles Or Yard	$ 5,181
CHINA SADDLE	Craig Mountain FPD	1994	1	Bonneville Power Admin.	Lightning	Lightning	$ 2,028
COUNTY LINE	Craig Mountain FPD	1994	0.3	Railroad Company	Railroad	Railroad, No Further Breakdown	$ 185
DEEP CREEK	Craig Mountain FPD	1994	0.1	Private Property	Debris Burning	Slash Burning, Prescribed	$ 293
DEER CREEK	Craig Mountain FPD	1994	0.1	Nez Perce Tribe	Arson	Fireworks	$ 1,755
DEER CREEK FALLS	Craig Mountain FPD	1994	0.1	Bureau Of Land Management	Lightning	Lightning	$ 2,671
EAGLE CREEK	Craig Mountain FPD	1994	3	Bonneville Power Admin.	Campfire	Campfire, No Further Breakdown	$ 16,781
GEORGE GRADE	Craig	1994	5	Nez Perce Tribe	Lightning	Lightning	$ 306

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	Mountain FPD						
GEORGE GRADE II	Craig Mountain FPD	1994	51	Private Property	Lightning	Lightning	$ 20,729
HANKS GRADE	Ponderosa FPD	1994	80	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 5,421
HARPERS BEND	Craig Mountain FPD	1994	0.1	Private Property	Miscellaneous	Lightning	$ 73
LAPWAI	Craig Mountain FPD	1994	280	Nez Perce Tribe	Debris Burning	Debris Burning, No Further Breakdown	$ 3,460
LELAND	Ponderosa FPD	1994	30	Private Property	Lightning	Lightning	$ 255
LENORE	Craig Mountain FPD	1994	0.1	State Of Idaho	Campfire	Campfire, No Further Breakdown	$ 31
LOUSE CREEK	Ponderosa FPD	1994	1.5	Private Property	Lightning	Lightning	$ 9,362
MAGPIE CREEK	Craig Mountain FPD	1994	0.1	Private Property	Debris Burning	Slash Burning, Prescribed	$ 276
MCCORMACK RIDGE	Craig Mountain FPD	1994	0.1	Private Property	Lightning	Lightning	$ 372
MILE POST 6	Ponderosa FPD	1994	230	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 18,419
MILL CREEK	Craig Mountain FPD	1994	4	Private Property	Lightning	Lightning	$ 3,889
NICHOLS CANYON	Craig Mountain FPD	1994	0.1	Private Property	Lightning	Lightning	$ 509
NORTH TOM BEALL	Craig Mountain FPD	1994	0.1	Private Property	Lightning	Lightning	$ 796
PECK	Craig Mountain FPD	1994	300	Private Property	Lightning	Lightning	$ 65,051
POTLATCH BREAKS	Ponderosa FPD	1994	0.1	Private Property	Lightning	Lightning	$ 303
STAR MILL	Craig Mountain FPD	1994	0.1	Private Property	Lightning	Lightning	$ 41
TURKEY FARM	Ponderosa FPD	1994	386	Private Property	Miscellaneous	Fireworks	$ 15,157
WEBB PILES	Craig Mountain FPD	1994	0.1	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 1,276

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
WEST COTTONWOOD	Craig Mountain FPD	1994	0.1	Private Property	Lightning	Lightning	$ 1,087
CEDAR CREEK	Ponderosa FPD	1995	0.2	Private Property	Lightning	Lightning	$ 1,874
CULDESAC	Craig Mountain FPD	1995	65	Nez Perce Tribe	Railroad	Railroad, No Further Breakdown	$ 3,540
DEER CREEK FALLS	Craig Mountain FPD	1995	0.1	Bonneville Power Admin.	Lightning	Lightning	$ 2,407
MILL CREEK	Craig Mountain FPD	1995	0.1	State Of Idaho	Lightning	Lightning	$ 485
SWEETWATER	Craig Mountain FPD	1995	40	Nez Perce Tribe	Miscellaneous	Fireworks	$ 1,165
THREE TIME CAYNON	Craig Mountain FPD	1995	30	Private Property	Lightning	Lightning	$ 2,026
TREE FARM	Ponderosa FPD	1995	0.5	U.S. Forest Service	Equipment Use	Powerline, Insulator, Transformers, Arc	$ 291
ALFALFA	Craig Mountain FPD	1996	1	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 1,000
BAR NONE EAGLE	Craig Mountain FPD	1996	0.3	Bureau Of Land Management	Lightning	Lightning	$ 2,747
BEE KEEPER	Craig Mountain FPD	1996	0.5	Private Property	Campfire	Campfire, No Further Breakdown	$ 358
CLEARWATER RIDGE	Craig Mountain FPD	1996	3	Private Property	Miscellaneous	Fireworks	$ 764
HARPERS BEND	Craig Mountain FPD	1996	0.1	Idaho Department of Transportation	Miscellaneous	Miscellaneous, No Further Breakdown	$ 76
LAWYER	Craig Mountain FPD	1996	2	Private Property	Debris Burning	Field Burning, Prescribed	$ 2,136
LITTLE CANYON FIRE	Maggie Creek FPD	1996	0.1	Private Property	Lightning	Lightning	$ 499
MADDEN CREEK	Craig Mountain FPD	1996	600	Idaho Fish & Game	Miscellaneous	Fireworks	$ 18,833
SWINGING BRIDGE	Ponderosa FPD	1996	0.1	Private Property	Miscellaneous	Electric Fence	$ 128
CEDAR CREEK	Ponderosa FPD	1997	5	Private Property	Lightning	Lightning	$ 14,949

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
EAGLE CREEK	Craig Mountain FPD	1997	2	Idaho Fish & Game	Lightning	Lightning	$ 3,601
MILEPOST 287	Craig Mountain FPD	1997	1	Idaho Department of Transportation	Miscellaneous	Burning Vehicle	$ 222
POTLATCH RIDGE	Ponderosa FPD	1997	0.2	Private Property	Lightning	Lightning	$ 1,447
WAPSHILLA	Craig Mountain FPD	1997	500	Idaho Fish & Game	Campfire	Warming Fire, Hunter Or Fishing	$ 840
BEDROCK	Ponderosa FPD	1998	50	Nez Perce Tribe	Lightning	Lightning	$ 3,126
BLU LAKE	Craig Mountain FPD	1998	0.1	Private Property	Equipment Use	Burning Vehicle	$ 1,021
COTTONWOOD CREEK	Craig Mountain FPD	1998	3	Nez Perce Tribe	Debris Burning	Debris Burning, No Further Breakdown	$ 297
OLD MELROSE GRADE	Craig Mountain FPD	1998	0.1	Private Property	Miscellaneous	Miscellaneous, No Further Breakdown	$ 1,798
PLANTATION FIRE	Craig Mountain FPD	1998	0.1	State Of Idaho	Lightning	Lightning	$ 1,603
POWERLINE PINE	Craig Mountain FPD	1998	1	Private Property	Lightning	Lightning	$ 195
ROCK CREEK	Craig Mountain FPD	1998	0.1	Private Property	Lightning	Lightning	$ 4,614
RRMP-15 FIRE	Craig Mountain FPD	1998	0.5	Camas Prairie Railroad	Railroad	Railroad, No Further Breakdown	$ 430
SPERRY PINE	Ponderosa FPD	1998	0.1	Private Property	Lightning	Lightning	$ 1,126
WAHA WEST	Craig Mountain FPD	1998	0.1	Private Property	Lightning	Lightning	$ 280
AXLE FIRE	Craig Mountain FPD	1999	0.1	Union Pacific Railroad	Equipment Use	Vehicle, Brakes	$ 272
DR. ANGEL	Craig Mountain FPD	1999	0.1	Private Property	Lightning	Lightning	$ 604
EAGLE CREEK	Craig Mountain FPD	1999	0.1	Idaho Fish & Game	Miscellaneous	Burning Vehicle	$ 713
EBERHARDT GRADE	Craig Mountain FPD	1999	0.1	Cities & Towns Lands	Lightning	Lightning	$ 374

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
MCCORMICK ROAD FIRE	Craig Mountain FPD	1999	0.5	Private Property	Debris Burning	Slash Burning, Prescribed	$ 642
MCGARY GRADE	Ponderosa FPD	1999	1	Coeur d' Alene Tribe	Debris Burning	Trash Burning, Piles Or Yard	$ 85
RIM FIRE	Craig Mountain FPD	1999	0.1	Private Property	Lightning	Lightning	$ 344
SUNNYSIDE	Ponderosa FPD	1999	0.1	Coeur d' Alene Tribe	Debris Burning	Yard Grass, Weeds, Ditch	$ 135
WAHA GLEN	Craig Mountain FPD	1999	0.1	Private Property	Miscellaneous	Structure Fire	$ 162
WAHA HI	Craig Mountain FPD	1999	0.1	Private Property	Debris Burning	Slash Burning, Prescribed	$ 299
WAUNCHER GULCH	Ponderosa FPD	1999	0.1	Coeur d' Alene Tribe	Equipment Use	Burning Vehicle	$ 151
WHITE PINE FLATS	Ponderosa FPD	1999	0.4	Kootenai Tribe	Lightning	Lightning	$ 4,269
BEAR CREEK	Craig Mountain FPD	2000	0.1	Private Property	Lightning	Lightning	$ 222
BROWN`S CREEK	Craig Mountain FPD	2000	0.1	Idaho Fish & Game	Lightning	Lightning	$ 1,286
CAPTAIN JOHN`S CREEK	Craig Mountain FPD	2000	0.1	Idaho Fish & Game	Lightning	Lightning	$ 9,769
CAPTAIN RIDGE	Craig Mountain FPD	2000	0.1	Bureau Of Land Management	Lightning	Lightning	$ 21
COOK GRADE	Ponderosa FPD	2000	0.1	Private Property	Lightning	Lightning	$ 41
CULDESAC GRADE	Craig Mountain FPD	2000	0.1	County Lands	Lightning	Lightning	$ 59
JACKS CANYON	Craig Mountain FPD	2000	0.1	Private Property	Lightning	Lightning	$ 321
MISSION CREEK	Craig Mountain FPD	2000	4	Private Property	Lightning	Lightning	$ 13,065
SOLDIER SLASH	Craig Mountain FPD	2000	0.1	Private Property	Lightning	Lightning	$ 2,060
SOUTH BROWN`S CREEK	Craig Mountain FPD	2000	0.1	Idaho Fish & Game	Lightning	Lightning	$ 2,047
TEN MILE	Craig Mountain	2000	50	Private Property	Equipment Use	Equipment Use, No Further	$ 942

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
	FPD					Breakdown	
WEBB CREEK	Craig Mountain FPD	2000	0.1	Idaho Fish & Game	Lightning	Lightning	$ 1,361
WILLSON CANYON	Craig Mountain FPD	2000	0.25	Private Property	Lightning	Lightning	$ 762
ZERO POINT	Ponderosa FPD	2000	18	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 5,938
AMOS BENCH	Craig Mountain FPD	2001	26	Nez Perce Tribe	Miscellaneous	Unknown	$ 63,190
CHERRY LANE	Craig Mountain FPD	2001	1	Idaho Department of Transportation	Miscellaneous	Unknown	$ 743
CHERRY LANE AGAIN	Craig Mountain FPD	2001	0.1	Idaho Department of Transportation	Miscellaneous	Unknown	$ 1,109
CORRAL CREEK	Craig Mountain FPD	2001	1595	Bureau Of Land Management	Equipment Use	Equipment Use, No Further Breakdown	$ 243,605
COTTONWOOD CREEK	Craig Mountain FPD	2001	1435	Idaho Fish & Game	Arson	Playing With Fireworks	$ 377,484
DEER CREEK	Craig Mountain FPD	2001	0.1	Nez Perce Tribe	Campfire	Campfire, No Further Breakdown	$ 135
DEER SWAMP	Craig Mountain FPD	2001	0.1	Idaho Fish & Game	Equipment Use	Equipment Use, No Further Breakdown	$ 561
DOUBLE EARL	Craig Mountain FPD	2001	0.1	Idaho Fish & Game	Lightning	Lightning	$ 3,802
PARTY FIRE	Craig Mountain FPD	2001	0.1	Idaho Fish & Game	Campfire	Campfire, No Further Breakdown	$ 25
ANGEL JACK	Craig Mountain FPD	2002	4	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 2,992
COLD ROCK	Craig Mountain FPD	2002	0.1	Idaho Fish & Game	Lightning	Lightning	$ -
FISH HATCHERY	Ponderosa FPD	2002	300	Private Property	Debris Burning	Yard Grass, Weeds, Ditch	$ 10,440
MISSION CREEK	Craig Mountain FPD	2002	0.5	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 114
OVER THE HILL	Craig Mountain FPD	2002	130	Private Property	Debris Burning	Debris Burning, No Further Breakdown	$ 577

Table 3.16. Wildfire Ignition Profile of Nez Perce County 1983-2002, Idaho Department of Lands.

Fire Name	District Name	Year	Size	Land Owner	General Cause	Specific Cause	Total Cost
POWERLINE	Craig Mountain FPD	2002	0.1	Private Property	Lightning	Lightning	$ 505
SOUTHWICK	Ponderosa FPD	2002	7	Private Property	Equipment Use	Equipment Use, No Further Breakdown	$ 2,459
SPERRY GRADE	Ponderosa FPD	2002	2	Private Property	Debris Burning	Yard Grass, Weeds, Ditch	$ 191
SUNNYSIDE	Ponderosa FPD	2002	60	Private Property	Equipment Use	Exhaust, Light Equipment, Chainsaw	$ 5,133
TREE FARM	Craig Mountain FPD	2002	1	Private Property	Lightning	Lightning	$ 60,981

3.10 Analysis Tools and Techniques to Assess Fire Risk

Nez Perce County and the adjacent counties of Lewis, Idaho, and Latah Counties, were analyzed using a variety of techniques, managed on a GIS system (ArcGIS 8.2). Physical features of the region were represented by data layers including roads, streams, soils, elevation, and remotely sensed images from the Landsat 7 ETM+ satellite. Field visits were conducted by specialists from Northwest Management, Inc., and others. Discussions with area residents and fire control specialists augmented field visits and provided insights to forest health issues and treatment options.

This information was analyzed and combined to develop an assessment of wildland fire risk in the region.

3.10.1 Fire Prone Landscapes

Schlosser *et al.* 2002, developed a methodology to assess the location of fire prone landscapes on forested and non-forested ecosystems in the western US. Working under an agreement with the Clearwater Resource Conservation and Development Council, Inc., (RC&D), Northwest Management, Inc., a natural resources consulting firm, completed a similar assessment for five counties in the north central Idaho area including Clearwater County, Latah County, Lewis County, and Idaho County. In a separate project, also funded by the Bureau of Land Management working in cooperation with Adams, Gem, Payette, Washington, and Valley Counties, through the West Central Highlands RC&D Area, Northwest Management, Inc., completed a Fire Prone Landscapes assessments on those listed areas. Additional assessments of Fire Prone Landscapes were completed simultaneously for Ada, Boise, Canyon, and Elmore Counties, working in cooperation with the Southwestern Idaho RC&D located in Meridian.

The goal of developing the Fire Prone Landscapes analysis is to make inferences about the relative risk factors across large geographical regions (multiple counties) for wildfire spread. This analysis uses the extent and occurrence of past fires as an indicator of characteristics for a specific area and their propensity to burn in the future. Concisely, if a certain combination of vegetation cover type, canopy closure, aspect, slope, stream and road density have burned with a high occurrence and frequently in the past, then it is reasonable to extrapolate that they will

have the same tendency in the future, unless mitigation activities are conducted to reduce this potential.

The analysis for determining those landscapes prone to wildfire utilized a variety of sources.

Digital Elevation: Digital elevation models (DEM) for the project used USGS 10 meter DEM data provided at quarter-quadrangle extents. These were merged together to create a continuous elevation model of the analysis area.

The merged DEM file was used to create two derivative data layers; aspect and slope. Both were created using the spatial analyst extension in ArcGIS 8.2. Aspect data values retained one decimal point accuracy representing the cardinal direction of direct solar radiation, represented in degrees. Slope was recorded in percent and also retained one decimal point accuracy.

Remotely Sensed Images: Landsat 7 Enhanced Thematic Mapper (ETM+) images were used to assess plant cover information and percent of canopy cover. The Landsat ETM+ instrument is an eight-band multi-spectral scanning radiometer capable of providing high-resolution image information of the Earth's surface. It detects spectrally-filtered radiation at visible, near-infrared, short-wave, and thermal infrared frequency bands from the sun-lit Earth. Nominal ground sample distances or "pixel" sizes are 15 meters in the panchromatic band; 30 meters in the 6 visible, near and short-wave infrared bands; and 60 meters in the thermal infrared band.

The satellite orbits the Earth at an altitude of approximately 705 kilometers with a sun-synchronous 98-degree inclination and a descending equatorial crossing time of 10 a.m. daily.

Image spectrometry has great application for monitoring vegetation and biophysical characteristics. Vegetation reflectance often contains information on the vegetation chlorophyll absorption bands in the visible region and the near infrared region. Plant water absorption is easily identified in the middle infrared bands. In addition, exposed soil, rock, and non-vegetative surfaces are easily separated from vegetation through standard hyper-spectral analysis procedures.

Two Landsat 7 ETM images were obtained to conduct hyper-spectral analysis for this project. The first was obtained in 1998 and the second in 2002. Hyper-spectral analysis procedures followed the conventions used by the Idaho Vegetation and Land Cover Classification System, modified from Redmond (1997) and Homer (1998).

Riparian Zones: Riparian zones were derived from stream layers created during the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

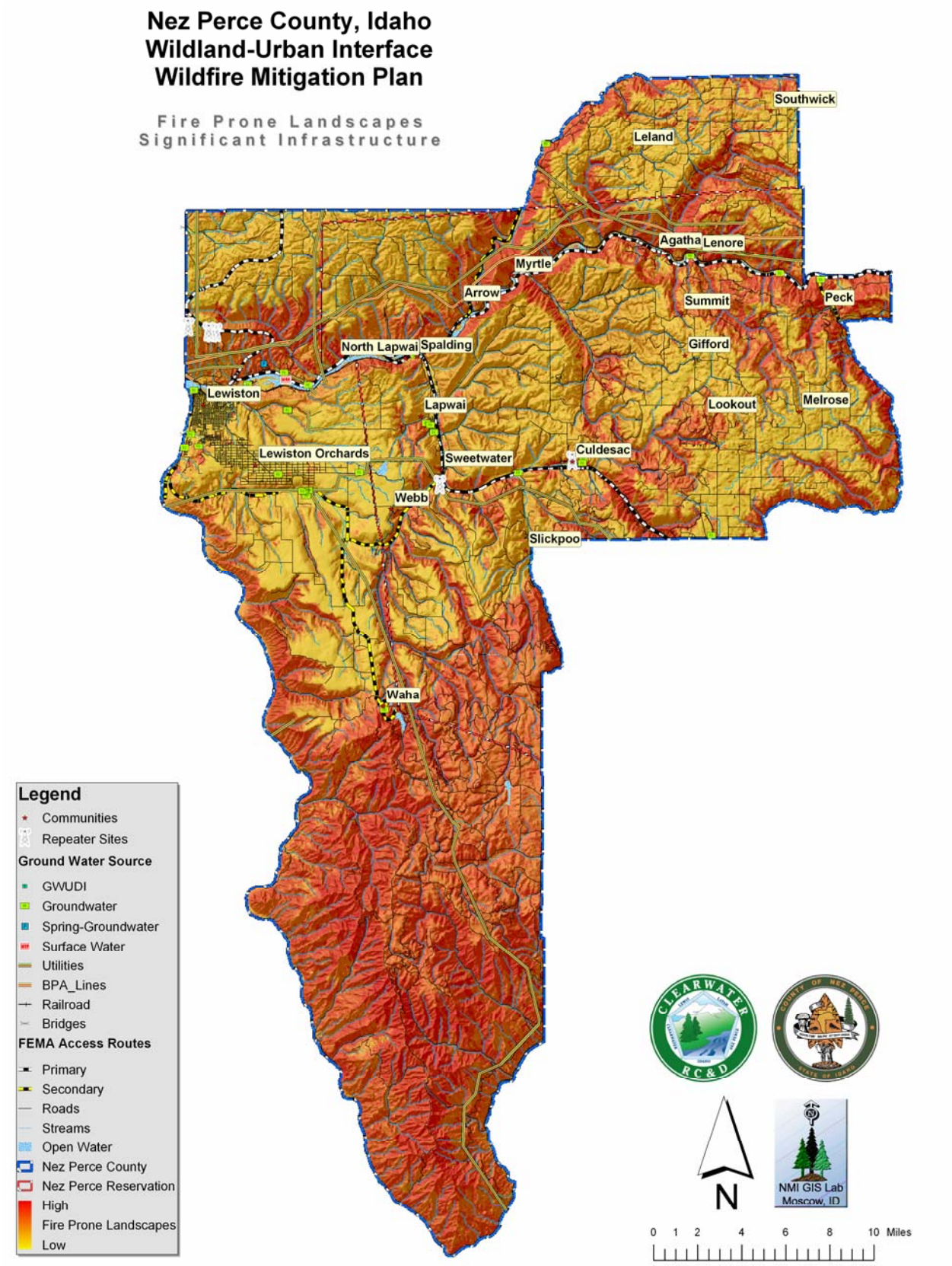
Wind Direction: Wind direction and speed data detailed by monthly averages was used in this project to better ascertain certain fire behavior characteristics common to large fire events. These data are spatially gridded Average Monthly Wind Directions in Idaho. The coverage was created from data summarized from the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

Past Fires: Past fire extents represent those locations on the landscape that have previously burned during a wildfire. Past fire extent maps were obtained from a variety of sources for the central Idaho area including the USFS Panhandle National Forest and the Idaho Department of Lands.

Fire Prone Landscapes: Using the methodology developed by Schlosser *et al.* (2002), and refined for this project, the factors detailed above were used to assess the potential for the landscape to burn during the fire season in the case of fire ignition. Specifically, the entire region was evaluated at a resolution of 10 meters (meaning each pixel on the screen represented a 10 meter square on the ground) to determine the propensity for a particular area (pixel) to burn in the case of a wildfire. The analysis involved creating a linear regression analysis within the GIS

program structure to assign a value to each significant variable, pixel-by-pixel. The analysis ranked factors from 0 (little to no risk) to 100 (extremely high risk) based on past fire occurrence. In fact, the maximum rating score for Nez Perce County was 88 with a low of 6.

Figure 3.3 Fire Prone Landscapes in Nez Perce County.



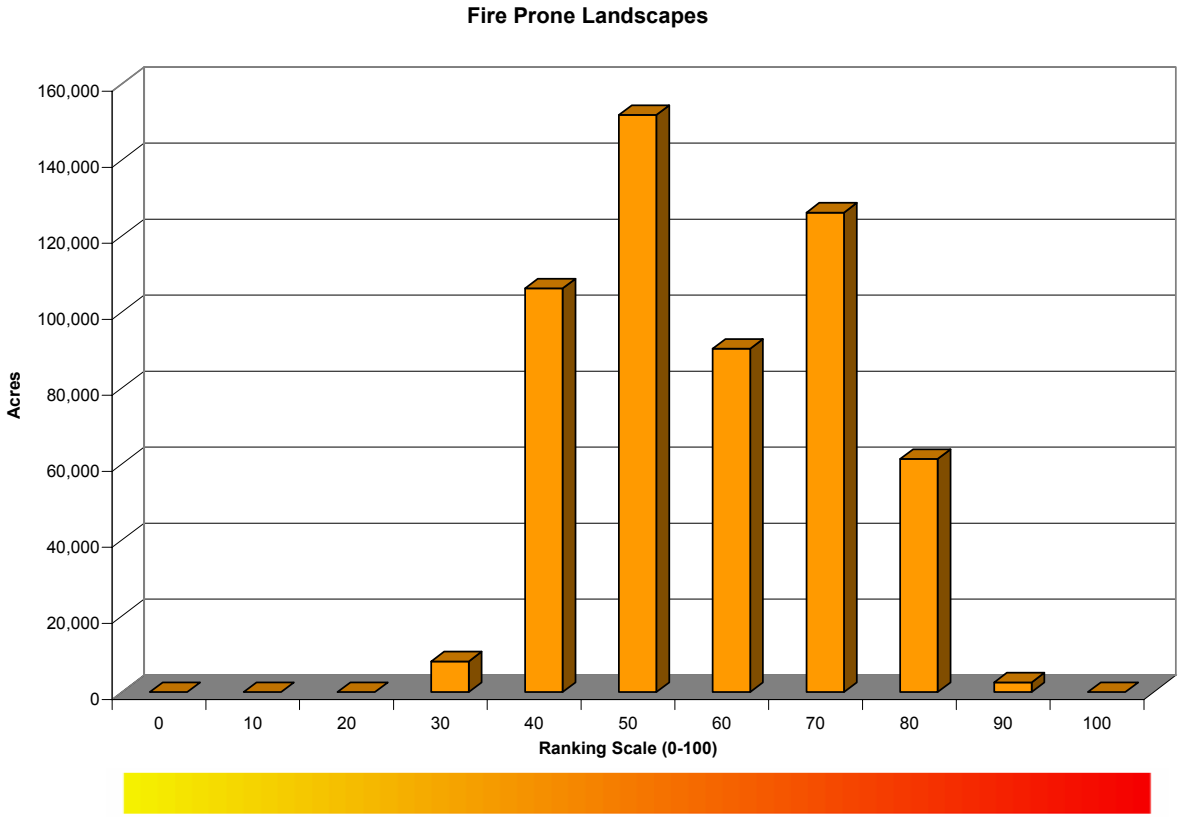
This map is presented for reference in this section of the plan. This map, and additional maps are detailed in Appendix I.

The maps depicting these risk categories display yellow as the lowest risk and red as the highest with values between a constant gradient from yellow to orange to red (Table 3.17). While large maps (16 square feet) have been provided as part of this analysis, smaller size maps are presented in Appendix I.

Table 3.17 Fire Prone Landscape rankings and associated acres in each category for Nez Perce County.

Color Code	Value	Total	Percent of Total Area
	0	0	0%
	10	0	0%
	20	0	0%
	30	8,084	2%
	40	106,230	20%
	50	151,879	18%
	60	90,351	17%
	70	126,192	23%
	80	61,372	11%
	90	2,558	0%
	100	11	0%

Figure 3.4: Distribution of area by Fire Prone Landscape Class.



The risk category values developed in this analysis should be considered **ordinal data**, that is, while the values presented have a meaningful ranking, they neither have a true zero point nor scale between numbers. Rating in the “40” range is not necessarily twice as “risky” as rating in the “20” range. These category values also do not correspond to a rate of fire spread, a fuel loading indicator, or measurable potential fire intensity. Each of those scales is greatly influenced by weather, seasonal and daily variations in moisture (relative humidity), solar radiation, and other factors. The risk rating presented here serves to identify where certain constant variables are present, aiding in identifying where fires typically spread into the largest fires across the landscape.

3.10.2 Historic Fire Regime

The US Forest Service has provided their assessment of Historic Fire Regimes for the forested areas of Nez Perce County to this WUI Fire Mitigation Plan analysis. These measures of forest conditions are the standard method of analysis for the USDA Forest Service.

In the fire-adapted ecosystems of Idaho, fire is undoubtedly the dominant process in terrestrial systems that constrains vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes (that is, fire frequency and fire severity prior to settlement by Euro-Americans) to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Obviously, historical fire regimes are a critical component for characterizing the historical range of variability in the fire-adapted ecosystems of Wyoming. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

We used a database of fire history studies in the region to develop modeling rules for predicting historical fire regimes (HFRs). Tabular fire-history data was stratified into spatial data ecoregions, potential natural vegetation types (PNVs), slope classes, and aspect classes to derive rule sets which were then modeled spatially. Expert opinion was substituted for a stratum when empirical data was not available.

Fire is the dominant disturbance process that manipulates vegetation patterns in Idaho. The HFR data were prepared to supplement other data necessary to assess integrated risks and opportunities at regional and subregional scales.

3.10.2.1 General Limitations

These data were derived using fire history data from a variety of different sources. These data were designed to characterize broad scale patterns of historical fire regimes for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:50,000. Although the resolution of the HFR theme is 30 meter cell size, the expected accuracy does not warrant their use for analyses of

areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Table 3.18. Natural Historic Fire Regimes in Nez Perce County, Idaho.

Natural Historic Fire Regime	Acres	Percent of Area
Non-lethal	126,226	23%
Mixed severity, short return interval	64,920	12%
Mixed severity, long return interval	6,619	1%
Stand replacement fires, long return interval	108	0%
Non-forest stand replacement, short return interval	91,345	17%
Non-forest mixed severity, moderate return interval	1,775	0%
Non-forest stand replacement, moderate return interval	5,736	1%
Agriculture	215,920	39%
Rock / barren	18,598	3%
Urban	10,510	2%
Water	5,370	1%
No information	10	0%

3.10.3 Fire Regime Condition Class

The US Forest Service has provided their assessment of Fire Regime Condition Class for the forested areas of Nez Perce County to this WUI Fire Mitigation Plan analysis. These measures of forest conditions are the standard method of analysis for the USDA Forest Service.

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse scale definitions for natural (historical) fire regimes have been developed by Hardy *et al.* (2001) and Schmidt *et al.* (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

V – 200+ year frequency and high (stand replacement) severity.

As scale of application becomes finer these five classes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy *et al.* (2001) and Schmidt *et al.* (2001) (FRCC). They include three condition

classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy *et al.* 2001, Schmidt *et al.* 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), "high graded" forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of the amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks are presented in Table 3.19. Maps depicting Fire Regime and Condition Class are presented in Appendix I.

Table 3.19. Fire Regime Condition Class Definitions.

Fire Regime Condition Class	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is

Fire Regime Condition Class	Description	Potential Risks
		moderate.
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

An analysis of Fire Regime Condition Class in Nez Perce County shows that approximately 9% of the County is in Condition Class 1 (low departure), just about 6% is in Condition Class 2 (moderate departure), and 38% in Condition Class 3 (Table 3.20).

Table 3.20. FRCC by area in Nez Perce County.

Condition Class		Acres	Percent of Area
1	low departure	51,846	9%
2	moderate departure	35,506	6%
3	high departure	208,676	38%
4	agriculture	215,920	39%
5	rock/barren	18,598	3%
7	urban	10,510	2%
8	water	5,370	1%
9	no information	713	0%

See Appendix I for maps of Fire Regime and Conditions Class.

3.10.4 Predicted Fire Severity

Current fire severity (CFS) is an estimate of the relative fire severity if a fire were to burn a site under its current state of vegetation. In other words, how much of the overstory would be removed if a fire were to burn today. The US Forest Service (Flathead National Forest) did not attempt to model absolute values of fire severity, as there are too many variables that influence fire effects at any given time (for example, temperature, humidity, fuel moisture, slope, wind speed, wind direction).

The characterization of likely fire severity was based upon historic fire regimes, potential natural vegetation, cover type, size class, and canopy cover with respect to slope and aspect. Each cover type was assigned a qualitative rating of fire tolerance based upon likely species composition and the relative resistance of each species to fire. The US Forest Service researchers defined 3 broad classes of fire tolerance: high tolerance (<20 percent post-fire mortality); moderate tolerance (20 to 80 percent mortality); and low tolerance (>80 percent mortality). We would expect that fires would be less severe within cover types comprised by species that have a high tolerance to fire (for example, western larch and ponderosa pine). Conversely, fires would likely burn more severely within cover types comprised by species having a low tolerance to fire (for example grand fir, subalpine fir). Data assignments were based upon our collective experience in the field, as well as stand structure characteristics reported in the fire-history literature. For example, if they estimated that a fire would remove less

than 20 percent of the overstory, the current fire severity would be assigned to the non-lethal class (that is, NL). However, if they expected fire to remove more than 80 percent of the overstory, the current fire severity was assigned to a stand replacement class (that is, SR or SR3).

3.10.4.1 Purpose

Fire is a dominant disturbance process in the Northern Rockies. The likely effect of fire upon vegetation (i.e., current fire severity) is critical information for understanding the subsequent fire effects upon wildlife habitats, water quality, and the timing of runoff. There have been many reports of how fire suppression and timber harvest has affected vegetation patterns, fuels, and fire behavior. The US Forest Service researchers from the Flathead National Forest, derived the current fire severity theme explicitly to compare with the historical fire regime theme to evaluate how fire severity has changed since Euro-American settlement (that is, to derive fire-regime condition class).

3.10.4.2 General Limitations

These data were designed to characterize broad scale patterns of estimated fire severity for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Although the resolution of the CFS theme is 90 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Current fire severity rule-set was developed for an "average burn day" for the specific vegetation types in our area. Any user of these data should familiarize themselves with the rule sets to better understand our estimate of current fire severity.

Table 3.21. Predicted Fire Severity by area in Nez Perce County.

Predicted Fire Severity		Acres	Percent of Area
1	non-lethal	3,315	1%
2	mixed severity, short interval	23,885	4%
3	mixed severity, long interval	146,095	27%
5	stand replacement	23,925	4%
6	non-forest std replc, shr	90,070	16%
7	non-forest mx svrty, mod	1,711	0%
8	non-forest std replc, mod	5,736	1%
10	agriculture	215,920	39%
11	rock/barren	18,598	3%
13	urban	10,510	2%
14	water	5,370	1%
15	no information	2,004	0%

See Appendix I for a map of Predicted Fire Severity.

3.10.5 On-Site Evaluations

Fire control and evaluation specialists as well as hazard mitigation consultants evaluated the communities of Nez Perce County to determine, first-hand, the extent of risk and characteristics

of hazardous fuels in the Wildland-Urban Interface. The on-site evaluations have been summarized in written narratives and are accompanied by photographs taken during the site visits. These evaluations included the estimation of fuel models as established by Anderson (1982). These fuel models are described in the following section of this document.

In addition, field personnel completed FEMA's Fire Hazard Severity Forms and Fire Hazard Rating Criteria Worksheets. These worksheets and standardized rating criteria allow comparisons to be made between all of the counties in the country using the same benchmarks. The FEMA rating forms are summarized for each community in Appendix II.

3.10.6 Fuel Model Descriptions

Anderson (1982) developed a categorical guide for determining fuel models to facilitate the linkage between fuels and fire behavior. These 13 fuel models, grouped into 4 basic groups: grass, chaparral and shrub, timber, and slash, provide the basis for communicating fuel conditions and evaluating fire risk. There are a number of ways to estimate fuel models in forest and rangeland conditions. The field personnel from Northwest Management, Inc., that evaluated communities and other areas of Nez Perce County have all been intricately involved in wildland fire fighting and the incident command system. They made ocular estimates of fuel models they observed. In an intense evaluation, actual sampling would have been employed to determine fuel models and fuel loading. The estimations presented in this document (Chapter 3) are estimates based on observations to better understand the conditions observed.

Fuel Model 0- This type consists of non-flammable sites, such as exposed mineral soil and rock outcrops. Other lands are also identified in this type.

3.10.6.1 Grass Group

3.10.6.1.1 Fire Behavior Fuel Model 1

Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one-third of the area.

Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations that met the above area constraint. Annual and perennial grasses are included in this fuel model.

This fuel model correlates to 1978 NFDRS fuel models A, L, and S.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and alive, tons/acre 0.74
Dead fuel load, ¼-inch, tons/acre 0.74
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 1.0

3.10.6.1.2 Fire Behavior Fuel Model 2

Fire is spread primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area may generally fit this

model; such stands may include clumps of fuels that generate higher intensities an that may produce firebrands. Some pinyon-juniper may be in this model.

This fuel model correlates to 1978 NFDRS fuel models C and T.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and alive, tons/acre 4.0
Dead fuel load, ¼-inch, tons/acre 2.0
Live fuel load, foliage, tons/acre 0.5
Fuel bed depth, feet 1.0

3.10.6.1.3 Fire Behavior Fuel Model 3

Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Stands are tall, averaging about 3 feet (1 m), but considerable variation may occur. Approximately one-third or more of the stand is considered dead or cured and maintains the fire. Wild or cultivated grains that have not been harvested can be considered similar to tall prairie and marshland grasses.

This fuel correlates to 1978 NFDRS fuel model N.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 3.0
Dead fuel load, ¼-inch, tons/acre 3.0
Live fuel load, foliage tons/acre 0
Fuel bed depth, feet 2.5

3.10.6.2 Shrub Group

3.10.6.2.1 Fire Behavior Fuel Model 4

Fire intensity and fast-spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs, 6 or more feet tall, such as California mixed chaparral, the high pocosin along the east coast, the pinebarrens of New Jersey, or the closed jack pine stands of the north-central States are typical candidates. Besides flammable foliage, dead woody material in the stands significantly contributes to the fire intensity. Height of stand qualifying for this model depends on local conditions. A deep litter layer may also hamper suppression efforts.

This fuel model represents 1978 NFDRS fuel models B and O; fire behavior estimates are more severe than obtained by Models B or O.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 13.0
Dead fuel load, ¼-inch, tons/acre 5.0
Live fuel load, foliage, tons/acre 5.0
Fuel bed depth, feet 6.0

3.10.6.2.2 Fire Behavior Fuel Model 5

Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood would qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.

No 1978 NFDRS fuel model is represented, but model 5 can be considered as second choice for NFDRS model D or as third choice for NFDRS model T. Young green stands may be up to 6 feet (2m) high but have poor burning properties because of live vegetation.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 3.5
Dead fuel load, ¼-inch, tons/acre 1.0
Live fuel load, foliage, tons/acre 2.0
Fuel bed depth, feet 2.0

3.10.6.2.3 Fire Behavior Fuel Model 6

Fires carry through the shrub layer where the foliage is more flammable than fuel model 5, but this requires moderate winds, greater than 8 mi/h (13 km/h) at mid-flame height. Fire will drop to the ground at low wind speeds or at openings in the stand. The shrubs are older, but not as tall as shrub types of model 4, nor do they contain as much fuel as model 4. A broad range of shrub conditions is covered by this model. Fuel situations to be considered include intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. Even hardwood slash that has cured can be considered. Pinyon-juniper shrublands may be represented but may over-predict rate of spread except at high winds, like 20 mi/h (32 km/h) at the 20-foot level.

The 1978 NFDRS fuel models F and Q are represented by this fuel model. It can be considered a second choice for models T and D and a third choice for model S.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acres..... 6.0
Dead fuel load, 1/4 –inch, tons/acre 1.5
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 2.5

3.10.6.2.4 Fire Behavior Fuel Model 7

Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel moisture contents because of the flammability of live foliage and other live material. Stands of shrubs are generally between 2 and 6 feet (0.6 and 1.8 m(high. Palmetto-gallberry understory-pine overstory sites are typical and low pocosins may be represented. Black spruce-shrub combinations in Alaska may also be represented.

This fuel model correlates with 1978 NFDRS model D and can be a second choice for model Q.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 4.9
Dead fuel load, ¼-inch, tons/acre 1.1

Live fuel load, foliage, tons/acre 0.4
Fuel bed depth, feet 2.5

3.10.6.3 Timber Group

3.10.6.3.1 Fire Behavior Fuel Model 8

Slow-burning ground fires with low flame lengths are generally the case, although the fire may encounter an occasional "jackpot" or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humilities, and high winds do the fuels pose fire hazards. Closed canopy stands of short-needle conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present in the stand. Representative conifer types are white pine, and lodgepole pine, spruce, fire and larch

This model can be used for 1978 NFDRS fuel models H and R.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch, dead and live, tons/acre 5.0
Dead fuel load, ¼-inch, tons/acre 1.5
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 0.2

3.10.6.3.2 Fire Behavior Fuel Model 9

Fires run through the surface litter faster than model 8 and have longer flame height. Both long-needle conifer stands and hardwood stands, especially the oak-hickory types, are typical. Fall fires in hardwoods are predictable, but high winds will actually cause higher rates of spread than predicted because of spotting caused by rolling and blowing leaves. Closed stands of long-needled pine like ponderosa, Jeffrey, and red pines, or southern pine plantations are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning.

NFDRS fuel models E, P, and U are represented by this model. It is also a second choice for models C and S.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 3.5
Dead fuel load, ¼-inch, tons/acre 2.9
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 0.2

3.10.6.3.3 Fire Behavior Fuel Model 10

The fires burn in the surface and ground fuels with greater fire intensity than the other timber little models. Dead-down fuels include greater quantities of 3-inch (7.6 cm) or larger limbwood, resulting from overmaturity or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; examples are insect- or disease-ridden stands, wind-thrown stands, overmature situations with dead fall, and aged light thinning or partial-cut slash.

The 1978 NFDRS fuel model G is represented.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 12.0
Dead fuel load, ¼-inch, tons/acre 3.0
Live fuel load, foliage, tons/acre 2.0
Fuel bed depth, feet 1.0

The fire intensities and spread rates of these timber litter fuel models are indicated by the following values when the dead fuel moisture content is 8 percent, live fuel moisture is 100 percent, and the effective windspeed at mid-flame height is 5 mi/h (8 km/h):

Table 3.22. Comparative Fire Intensities and Rates of Spread in Timber Fuel Models.

Fuel Model	Rate of Spread Chains/hour	Flame length Feet
8	1.6	1.0
9	7.5	2.6
10	7.9	4.8

Fires such as above in model 10 are at the upper limit of control by direct attack. More wind or drier conditions could lead to an escaped fire.

3.10.6.4 Logging Slash Group

3.10.6.4.1 Fire Behavior Fuel Model 11

Fires are fairly active in the slash and herbaceous material intermixed with the slash. The spacing of the rather light fuel load, shading from overstory, or the aging of the fine fuels can contribute to limiting the fire potential. Light partial cuts or thinning operations in mixed conifer stands, hardwood stands, and southern pine harvests are considered. Clearcut operations generally produce more slash than represented here. The less-than-3-inch (7.6-cm) material load is less than 12 tons per acre (5.4 t/ha). The greater-than-3-inch (7.6-cm) is represented by not more than 10 pieces, 4 inches (10.2 cm) in diameter, along a 50-foot (15 m) transect.

The 1978 NFDRS fuel model K is represented by this model.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre 11.5
Dead fuel load, ¼-inch, tons/acre 1.5
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 1.0

3.10.6.4.2 Fire Behavior Fuel Model 12

Rapidly spreading fires with high intensities capable of generating firebrands can occur. When fire starts, it is generally sustained until a fuel break or change in fuels is encountered. The visual impression is dominated by slash and much of it is less than 3 inches (7.6 cm) in diameter. The fuels total less than 35 tons per acres (15.6 t/ha) and seem well distributed. Heavily thinned conifer stands, clearcuts, and medium or heavy partial cuts are represented. The material larger than 3 inches (7.6 cm) is represented by encountering 11 pieces, 6 inches (15.3 cm) in diameter, along a 50-foot (15-m) transect.

This model depicts 1978 NFDRS model J and may overrate slash areas when the needles have dropped and the limbwood has settled. However, in areas where limbwood breakup and general weathering have started, the fire potential can increase.

Fuel model values fore estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre 34.6
Dead fuel load, ¼-inch, tons/acre 4.0
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 2.3

3.10.6.4.3 Fire Behavior Fuel Model 13

Fire is generally carried across the area by a continuous layer of slash. Large quantities of material larger than 3 inches (7.6 cm) are present. Fires spread quickly through the fine fuels and intensity builds up more slowly as the large fuels start burning. Active flaming is sustained for long periods and a wide variety of firebrands can be generated. These contribute to spotting problems as the weather conditions become more severe. Clearcuts and heavy partial-cuts in mature and overmature stands are depicted where the slash load is dominated by the greater-tayhn-3-inch (7.6-cm) diameter material. The total load may exceed 200 tons per acre (89.2 t/ha) but fuel less than 3 inches (7.6 cm_ is generally only 10 percent of the total load. Situations where the slash still has “red’ needles attached but the total load is lighter, more like model 12, can be represented because of the earlier high intensity and quicker area involvement.

The 1978 NFDRS fuel model I is represented. Areas most commonly fitting his model are old-growth stands west of the Cascade and Sierra Nevada Mountains. More efficient utilization standards are decreasing the amount of large material left in the field.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 58.1
Dead fuel load, ¼-inch, tons/acre 7.0
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 3.0

For other slash situations:

Hardwood slash .....Model 6
Heavy “red” slash.....Model 4
Overgrown slash .....Model 10
Southern pine clearcut slash.....Model 12

The comparative rates of spread and flame lengths for the slash models at 8 percent dead fuel moisture content and a 5 mi/h (8 km/h) mid-flame wind are presented in Table 3.25.

Table 3.23. Comparative Fire Intensities and Rates of Spread in Slash Fuel Models.

Fuel Model	Rate of Spread Chains/hour	Flame length Feet
11	6.0	3.5
12	13.0	8.0
13	13.5	10.5

3.11 Wildland-Urban Interface

3.11.1 People and Structures

A key component in meeting the underlying need is the protection and treatment of fire hazard in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments, or where forest fuels meet urban fuels (such as houses). These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes and fuels that lead directly to a risk to urban developments. Reducing the fire hazard in the wildland urban interface requires the efforts of federal, state, local agencies, and private individuals (Norton 2002). "The role of [most] federal agencies in the wildland urban interface includes wildland fire fighting, hazard fuels reduction, cooperative prevention and education and technical experience. Structural fire protection [during a wildfire] in the wildland urban interface is [largely] the responsibility of Tribal, state, and local governments" (USFS 2001). Property owners share a responsibility to protect their residences and businesses and minimize fire danger by creating defensible areas around them and taking other measures to minimize the fire risks to their structures (USFS 2001). With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities. In addition, a wildland urban interface that is properly thinned will be less likely to sustain a crown fire that enters or originates within it (Norton 2002).

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing defensible space, landowners would protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior (McCoy *et al.* 2001 as cited in Norton 2002);
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Four wildland/urban conditions have been identified for use in the wildland urban interface (Norton 2002). These include the Interface Condition, Intermix Condition, Occluded Condition, and Rural Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation, the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres;
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development

density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size; and

- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.

The location of structures in Nez Perce County have been mapped and are presented on a variety of maps in this analysis document; specifically in Appendix I. The location of all structures was determined by examining two sets of remotely sensed images. The more detailed information was garnered from digital ortho-photos at a resolution of 1 meter (from 1998). For those areas not covered by the 1 meter DOQQ images, SPOT satellite imagery at a resolution of 10 meters was used (from 2002). These records were augmented with data collected on hand-held GPS receivers to record the location of structures, especially in areas where new housing developments were seen.

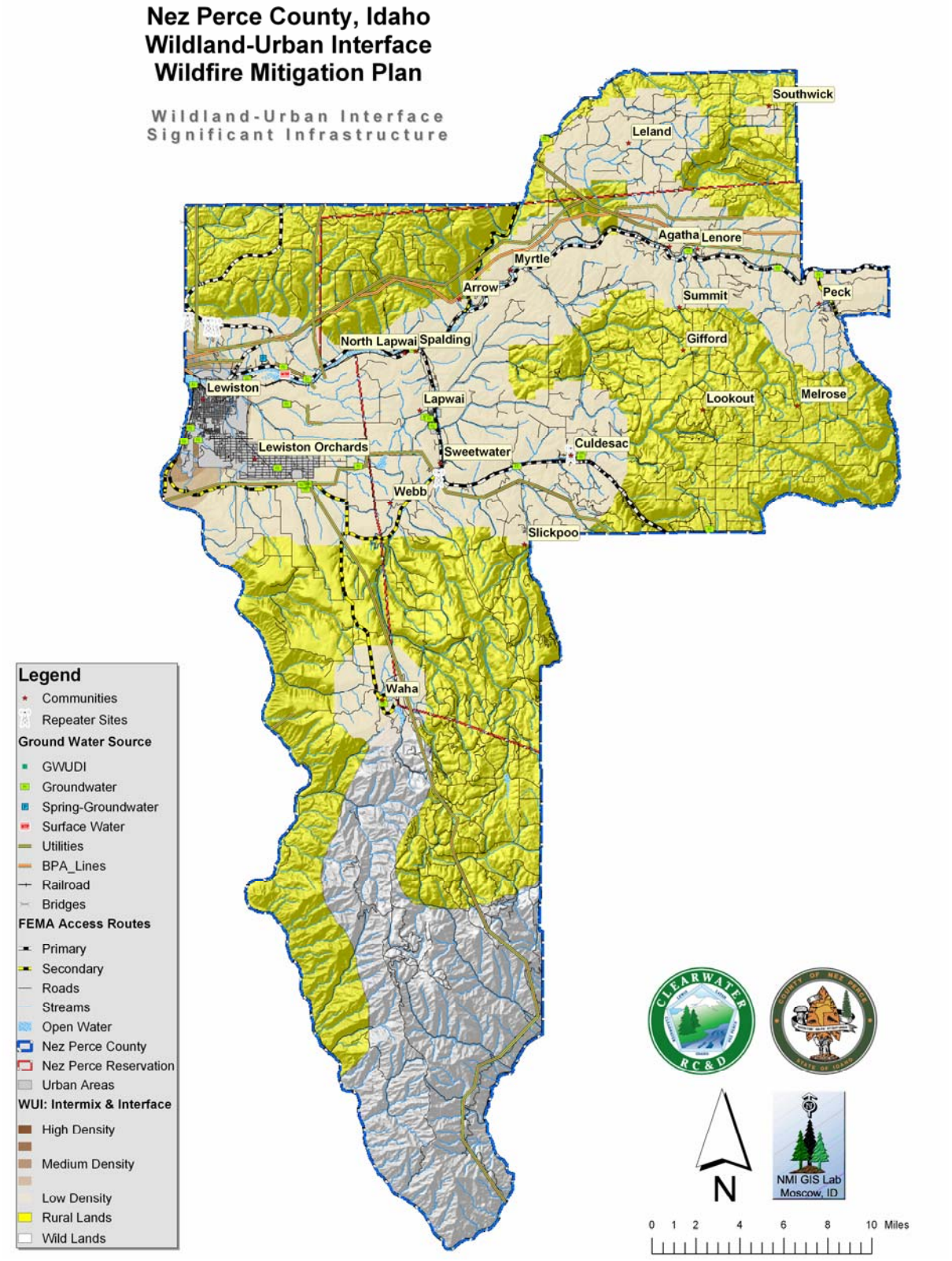
All structures are represented by a "dot" on the map. No differentiation is made between a garage and a home, or a business and a storage building. The density of structures and their specific locations in this management area are critical in defining where the potential exists for casualty loss in the event of a wildfire in the region.

By evaluating this structure density, we can define WUI areas on maps by using mathematical formulae and population density indexes to define the WUI based on where structures are located. The resulting population density indexes create concentric circles showing high density areas of Interface and Intermix WUI, as well as Rural WUI (as defined by Secretary Norton of the Department of Interior). This portion of the analysis allows us to "see" where the highest concentrations of structures are located in reference to high risk landscapes, limiting infrastructure, and other points of concern.

It is critical to understand that in the protection of people, structures, infrastructure, and unique ecosystems, this portion of the analysis only serves to identify structures and by some extension the people that inhabit them. It does not define the location of infrastructure and unique ecosystems. Other analysis tools will be used for those items.

The WUI interface areas as defined here are presented in map form in Appendix I.

Figure 3.5 Wildland-Urban Interface of Nez Perce County.



This map is presented for reference in this section of the plan. This map, and additional maps are detailed in Appendix I.

3.11.2 Infrastructure

Nez Perce County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this WUI Fire Mitigation Plan is the existence of highway routes (eg., U.S. Highways 95 and 12 and State Highway 3) and the presence of power lines supplying surrounding counties. The County is also served by two freight-only (no passenger service) railroads, the Second Subdivision of the Camas Prairie Railroad from Lewiston to Grangeville (inactive) and the First Subdivision of the Camas Prairie Railroad from Lewiston to Spalding, then on up the Clearwater River to Kamiah. These resources will be considered in the protection of infrastructural resources for Nez Perce County and to the larger extent of this region, and the rest of Idaho.

Power lines have been mapped and are presented in Appendix I. Protection of these lines from loss during a wildfire is paramount in as much as the electrical power they provide serves not only the communities of Nez Perce County but of surrounding counties. The protection of these lines allows for community sustainability, support of the economic viability of Nez Perce County, and the protection of people who rely on that power. Fuels mitigation under power lines has received considerable attention in forested ecosystems as timber is thinned and heavy accumulations of brush are managed. This practice should be mandated into the future. However, the importance of management of rangeland ecosystems under power lines should not be overlooked. Brush intermixed with grasses and other species, during extreme fire weather events, coupled with steep slopes can produce considerable heat and particulate matter. When this occurs under power lines, the result can be arching between lines and even failure of the electrical media itself. Fuel mitigation treatments in high risk areas, especially where multiple lines are co-located, will be recommended for treatments.

3.11.3 Ecosystems

Nez Perce County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. A century of wildland fire suppression coupled with past land-use practices (primarily agriculture and timber harvesting) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, forests and rangelands in Nez Perce County have become more susceptible to large-scale, high intensity fires posing a threat to life, property, and natural resources including wildlife and special status plant populations and habitats. High-intensity, stand-replacing fires have the potential to seriously damage soils and native vegetation. In addition, an increase in the number of large high intensity fires throughout the nation's forest and rangelands, has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

3.12 Soils

There are various soil types in the Nez Perce County area. Three major soil divisions are found:

1. Two percent of the land area was formed on dissected alluvial terraces and is presently used for cropland, rangeland, or urban development.
2. Sixty-four percent of the land area was formed on higher elevation plateaus and is presently used for cropland, woodland, rangeland, or urban development.
3. Thirty-four percent of the land area was formed on canyon sides and is presently used for rangeland, woodland, and wildlife habitat.

Our soil resource is an extremely important component for maintaining a healthy ecosystem and economy. Fire can play an intricate role in this process, if it occurs under normal conditions of light fuels associated with low intensity underburns. However, the buildup of fuels and consequent high severity fires can cause soils to become water repellent (hydrophobic), and thus greatly increases the potential for overland flow during intense rains. Soil in degraded conditions does not function normally, and will not be able to sustain water quality, water yield, or plant communities that have normal structure, composition, and function. Fire is also strongly correlated with the carbon-nutrient cycles and the hydrologic cycle. Fire frequency, extent, and severity are controlled to a large degree by the availability of carbon, as well as the moisture regime (Quigley & Arbelbide 1997).

Soils were evaluated for their propensity to become hydrophobic during and after a fire as evidenced by the presence of clay and clay derivatives (e.g., clay loam, cobbly clay) in the upper soil layers. In addition, their permeability and tendency to allow runoff to infiltrate the soil rapidly was evaluated. In general, with notable exceptions, the majority of the area within Nez Perce County has highly variable clay content in the Bt horizon. Much of the area has little to no reported clay content in the A horizon with a silt loam to a gravelly silt loam present. On average these soils are well drained with moderate permeability.

Low to moderate intensity fires would be not be expected to damage soil characteristics in the region, especially if the hotter fires in this range were limited to small extents associated with jackpots of cured fuels. Hot fires providing heat to the Bt horizon substrate depth have the potential to create hydrophobic characteristics in that layer. This can result in increased overland flow during heavy rains, following wildfire events, potentially leading to mass wasting. Rocky and gravelly characteristics in the A horizon layer would be expected to be displaced, while the silty and loamy fines in these soils may experience an erosion and displacement potential. These soils will experience the greatest potential impacts resulting from hot fires that burn for prolonged periods (especially on steep slopes).

The National Resource Conservation Service (NRCS) has mapped a large portion of Nez Perce County in detail. A complete soil survey for Nez Perce County was distributed in 2001. Please refer to the Lewis and Nez Perce County NRCS Soil Survey Report to view each soil unit in the County and the associated characteristics relating to the effects of wildland fire.

3.12.1 Fire Mitigation Practices to Maintain Soil Processes

Firelines constructed by hand or with the use of machinery will have varying impacts, depending upon construction techniques. If only the surface litter is removed in the fireline construction, minor increases to soil erosion may occur. If trenches are dug which channelize runoff down steep slopes, heavy rilling or gullying could occur depending upon rock content of surface layers exposed. Jackpot burning and, to a greater extent, pile burning would result in greater soil heating and localized impacts. Loss of soil carbon, nitrogen, sulphur, phosphorus, potassium, and soil organisms would be high in the soil surface layer. Soil physical structure could be altered thereby creating hydrophobic soils, especially where clay content is moderate or high.

Indirect effects of prescribed burning to slope stability are highly variable in the soil types found in Nez Perce County. Vegetation structure, including root strength after over burning, is maintained from three to fifteen years following low to moderate intensity burns and therefore soil saturation potential is not greatly altered. Re-vegetation of burned areas within this time frame will be a critical component to maintaining soil resources and pre-empting noxious weeds and invasive species from occupying the site. Locale experiencing high intensity burns will need to be evaluated immediately for mechanical erosion control followed by re-vegetation efforts.

Holding soils in place will be a difficult challenge in many locations, especially on moderate to steep slopes.

Where heavy grazing has occurred in the past, there is also a possibility that soil productivity has been reduced. This is especially true in riparian areas where animal concentrations have historically been the greatest. These areas generally have easily compacted soils, and are where cattle tend to linger if not managed well. Mining also has significant effects on soil quality through soil compaction and mass displacement. Grazing across Nez Perce County was observed to be maintained in a sustainable manner without the overgrazing found in other areas of the region.

Severe fires in the past have consumed surface organics and volatilized nitrogen into the air. On some sites, however, these severe burns are a natural process, and therefore the inherent soil productivity may not be reduced. On other sites, however, where low intensity underburns typically occurred, high intensity wildland fires have consumed amounts of soil organics in excess of the historic patterns. Furthermore, excessive soil heating in these intense fires likely resulted in creation of water repellent soils, and therefore increased overland flow and soil erosion. In these cases, it can be assumed that wildland fires have reduced long-term soil productivity. Soil compaction damage typically is persistent in the area; several decades of rest from further compactive forces are needed until adequate soil recovery occurs. Loss of organics due to displacement and severe fire also requires decades to recuperate. This slow recovery from soil damage makes cumulative effects to soil productivity and soil hydrologic function a major concern.

To avoid potential impacts, wherever possible firelines should be located outside of highly erosive areas, steep slopes, intermittent streams, and riparian and other sensitive areas. Following prescribed fire or fire suppression activities, firelines should be rehabilitated.

3.13 Hydrology

The Idaho Water Resource Board is charged with the development of the Idaho Comprehensive State Water Plan. Included in the State Water Plan are the statewide water policy plan, and component basin and water body plans which cover specific geographic areas of the state (IDEQ 2003). The Idaho Department of Water Resources has prepared General Lithologies of the Major Ground Water Flow Systems in Idaho.

The state may assign or designate beneficial uses for particular Idaho water bodies to support. These beneficial uses are identified in sections 3.35 and 100.01 - .05 of the Idaho water quality standards (WQS). These uses include:

- **Aquatic Life Support:** cold water biota, seasonal cold water biota, warm water biota, and salmonid spawning;
- **Contact Recreation:** primary (swimming) and secondary (boating);
- **Water Supply:** domestic, agricultural, and industrial; and
- **Wildlife Habitat and Aesthetics**.

While there may be competing beneficial uses in streams, federal law requires DEQ to protect the most sensitive of these beneficial uses (IDEQ 2003).

The geology and soils of this region lead to rapid to moderate moisture infiltration. Slopes are moderate to steep, however, headwater characteristics of the watersheds lead to a high degree of infiltration as opposed to a propensity for overland flow. Thus sediment delivery efficiency of first and third order streams is fairly low. The bedrock is typically well fractured and moderately

soft. This fracturing allows excessive soil moisture to rapidly infiltrate into the rock and thus surface runoff is rare. Natural mass stability hazards associated with slides are low. Natural sediment yields are low for these watersheds. However, disrupted vegetation patterns from logging (soil compaction) and wildland fire (especially hot fires that increase soil hydrophobic characteristics), can lead to increased surface runoff and debris flow to stream channels.

A correlation to mass wasting due to the removal of vegetation caused by high intensity wildland fire has been documented. Burned vegetation can result in changes in soil moisture and loss of rooting strength that can result in slope instability, especially on slopes greater than 30%. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches.

Table 3.24 Municipal water supplies in Nez Perce County.

NAME	SYSTEM TYPE	SOURCE NAME	SOURCE TYPE	LATITUDE	LONGITUDE	POPULATION SERVED
BIA NORTH IDAHO INDIAN AGENCY	Community	W#1 PUMP HOUSE	Groundwater	46.39664	-116.80395	300
BIA NORTH IDAHO INDIAN AGENCY	Community	W#2 SCHOOL YARD	Groundwater	46.39636	-116.80418	300
BLOUNT INC	Non-community Non-transient	WELL	Groundwater	46.39513	-117.03498	400
CANYON INN	Non-community Transient	WELL	Groundwater	46.49547	-116.43564	80
CANYON INN	Non-community Transient	WELL #2	Groundwater	46.49510	-116.43569	80
COUGAR RIDGE SUBD	Community	WELL 2-SOUTH	Groundwater	46.41057	-116.94298	63
COUGAR RIDGE SUBD	Community	WELL #1	Groundwater	46.41084	-116.94304	63
CULDESAC CITY OF	Community	WELL #2 UPPER	Groundwater	46.37861	-116.66212	500
CULDESAC CITY OF	Community	WELL #1 LOWER	Groundwater	46.37566	-116.66309	500
EATON MOBILE HOME COURT	Community	WELL	Groundwater	46.43558	-116.94637	50
JULIAETTA CITY OF	Community	WELL #5	Groundwater	46.58533	-116.69646	560
KAMP TOMAHAWK	Non-community Transient	WELL #1	Groundwater	46.49947	-116.47459	25
LAPWAI CITY OF	Community	WELL #5 RES W	Groundwater	46.40219	-116.81120	932
LAPWAI CITY OF	Community	BALL FIELD WELL	Groundwater	46.40120	-116.80737	932
LENORE REST STOP IDT	Non-community Transient	WELL	Groundwater	46.51122	-116.55977	80
LEWISTON CITY	Community	CLEARWATER	Surface	46.43053	-116.94464	14,052

Table 3.24 Municipal water supplies in Nez Perce County.

NAME	SYSTEM TYPE	SOURCE NAME	SOURCE TYPE	LATITUDE	LONGITUDE	POPULATION SERVED
OF		R	Water			
LEWISTON CITY OF	Community	WELL #5 SW LEW	Groundwater	46.38614	-117.04108	14,052
LEWISTON CITY OF	Community	WELL #4 AT TPI	GWUDI	46.42078	-116.98998	14,052
LEWISTON CITY OF	Community	GOLF COURSE W	Groundwater	46.38714	-117.02759	14,052
LEWISTON HILL PORT OF ENTRY IDT	Non-community Transient	WELL	Groundwater	46.46149	-117.01660	25
LEWISTON ORCHARDS IRRIGATION DIST	Community	WELL #1 OFCWELL	Groundwater	46.36875	-116.95202	18,000
LEWISTON ORCHARDS IRRIGATION DIST	Community	WELL #2 LABWELL	Groundwater	46.37003	-116.87487	18,000
LEWISTON ORCHARDS IRRIGATION DIST	Community	WELL 3	Groundwater	46.38428	-116.95342	18,000
LEWISTON ROUNDUP	Non-community Transient	SOUTHSIDE #3	Groundwater	46.35502	-116.92519	50
LEWISTON ROUNDUP	Non-community Transient	W WELL #2	Groundwater	46.35838	-116.92315	50
LEWISTON ROUNDUP	Non-community Transient	N WELL #1	Groundwater	46.35756	-116.92704	50
LONG MACHINERY	Non-community Non-transient	WELL #1	Groundwater	46.42709	-116.92357	50
ODETTAS KOUNTRY KITCHEN	Non-community Transient	WELL #1	Groundwater	46.36953	-116.72429	100
POTLATCH CORP LEWISTON	Non-community Non-transient	WELL #2 SWML E	Groundwater	46.42184	-116.98142	1,800
POTLATCH CORP LEWISTON	Non-community Non-transient	WELL #1 SWML W	Groundwater	46.42191	-116.98097	1,800
POTLATCH CORP LEWISTON	Non-community Non-transient	PLP/PPR WELL #5	Groundwater	46.42725	-116.98075	1,800
RED ROCK LAND AND WATER COMPANY	Community	SPRING	Spring-Groundwater	46.44114	-116.96545	60
REUBENS CITY OF	Community	WELL #2 RR	Groundwater	46.32766	-116.54115	70

Table 3.24 Municipal water supplies in Nez Perce County.

NAME	SYSTEM TYPE	SOURCE NAME	SOURCE TYPE	LATITUDE	LONGITUDE	POPULATION SERVED
TAMMANY ALTERNATIVE CENTER	Non-community Non-transient	EAST SIDE WELL	Groundwater	46.35839	-116.92775	80
TAMMANY ALTERNATIVE CENTER	Non-community Non-transient	OLD WELL	Groundwater	46.35784	-116.92918	80
TWIN CITY FOODS INC	Non-community Non-transient	WELL	Groundwater	46.42350	-117.03204	200
USPS SPAULDING PARK AND VISITOR CENTER	Non-community Transient	22B S W WELL	Groundwater	46.44696	-116.82220	25
WAHA GLEN WATER DIST	Community	WELL #1	Groundwater	46.21366	-116.85163	120

3.13.1 Fire Mitigation Practices to Maintain Hydrologic Processes

The effects of wildland fire and prescribed burning on water quality are variable. The removal of the vegetative canopy will tend to reduce transpiration and increase water yield, especially during the growing season and immediately afterwards (MacDonald *et al.* 1991). Prescribed burning is used to maintain a healthy, dynamic ecosystem while meeting land management objectives. Prescribed burning objectives include reduction of natural fuels, assuring current and future habitat conditions for native plants and animals, improvement of forest health, and enhancement, protection, and maintenance of old growth and riparian areas. The majority of the burned areas are expected to receive a low intensity ground fire with some areas of moderate intensity. This may include occasional torching of single trees or larger clumps or trees and consumption of some patches of regeneration. Impacts to soil and large woody debris are expected to be minimal, given project targets. In rangeland ecosystems, prescribed fire will have variable impacts dependant on burn intensity and proximity to streams. Stream buffering (low intensity to no burn around streams) has been shown to preserve most if not all normal sediment filtering functions.

A large, stand-replacing fire could have negative effects on watershed conditions, thus affecting both fish and habitat in streams. Treatment with low to moderate intensity fire would result in a mosaic pattern of burned and unburned areas of ground level vegetation species and ground level natural fuels. Some patches of shade-tolerant, fire intolerant species may also be consumed. Prescribed burning is not designed to consume all vegetation within project areas. Each treatment will leave a mosaic of burned and unburned areas. Once the target fuels and the risk of fire carrying from one tributary to another have been reduced, hand ignition may be considered on a site-specific basis.

The effects on sediment yield vary according to the intensity of fire; degree of soil disturbance; steepness of the slope and drainage network; the size of the area burned; and the extent to which the vegetation controls the movement and storage of sediment. Fire also increases surface erosion and sediment delivery rates by removing the litter layer and organic debris that traps sediment both on slopes and in the stream channel (MacDonald *et al.* 1991). The

magnitude of these effects will depend on the geomorphic sensitivity of the landscape, which is largely a function of slope steepness and parent material (Swanson 1978).

Fire can greatly increase surface erosion by temporarily creating a hydrophobic soil layer. Soils within the project area are generally at moderate risk for hydrophobic conditions due to their fine-grained textures and clay content. In addition, the relatively low burn intensity of the prescribed fires will also help prevent the formation of hydrophobic soils.

The effects of wildland fire or prescribed fire are generally considered in terms of potential short-term, negative effects and long-term benefits of fuels reduction, which will result in a decreased risk of high intensity, stand-replacing fire. Potential short-term effects to streams and fish include increased risk of landslides, mass movement and debris torrents, increases in surface sediment erosion, possible reduction in streamside vegetation resulting in changes within management areas, and possible increases in water yield depending on the amount and severity of the vegetation burned. Long-term effects include increases in nutrient delivery, possible increases in woody debris in streams, and possible increases in stream temperature if shading is significantly reduced. The design criteria described above minimizes the risk that landslides, mass movement, significant increases in surface sediment yield, and significant changes in water yield will occur.

Reduction of vegetation will mostly be limited to creeping ground fires, which will reduce understory vegetation, but will not affect mature trees or result in significant mortality to the overstory. Spring burning often results in minimal riparian vegetation burned because streamside areas have higher humidity and live plant moisture. Fall burning will more likely result in understory vegetation removal, with a possibility of some tree and large shrub mortality, especially outside of riparian zones where live plant moisture is less.

Riparian buffer strips will be maintained, thereby preserving canopy cover for shading, sediment filtering, and streambank and floodplain stability (PACFISH guidelines). Areas not burned will provide significant protection from adverse water quality impacts associated with wildland fire and prescribed burning. Therefore, effects to fish and habitat in these streams from increased water yield are unlikely. The area has been roaded from past management activities. Therefore, increased road densities from road construction are not expected to be of a magnitude to increase sedimentation to affected drainages, provided adequate planning for new road construction is implemented. Forest practices in the area will be conducted to meet the standards of the Idaho Forest Practices Act. These rules are designed to use best management practices that are adapted to and take account of the specific factors influencing water quality, water quality objectives, on-site conditions, and other factors applicable to the site where a forest practice occurs.

3.14 Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides (USDA Forest Service 2000).

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in Central Idaho are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. In Nez Perce County, winds are predominantly from the southwest but occasionally blow from the west to northwest. Air quality in the area and surrounding airshed is generally good to excellent. However, locally adverse conditions can result from occasional wildland fires in the

summer and fall, and prescribed fire and agricultural burning in the spring and fall. All major river drainages are subject to temperature inversions which trap smoke and affect dispersion, causing local air quality problems. This occurs most often during the summer and fall months and would potentially affect all communities in Nez Perce County.

Smoke management in Nez Perce County is managed by the Idaho/Montana Airshed Group. Much of the county is in Airshed Unit 12A; however, the southernmost regions fall into Airshed Unit 13. An airshed is a geographical area which is characterized by similar topography and weather patterns (or in which atmospheric characteristics are similar, e.g., mixing height and transport winds). The USDA Forest Service, Bureau of Land Management, and the Idaho Department of Lands are all members of the Montana/Idaho State Airshed Group, which is responsible for coordinating burning activities to minimize or prevent impacts from smoke emissions. Prescribed burning must be coordinated through the Missoula Monitoring Unit, which coordinates burn information, provides smoke forecasting, and establishes air quality restrictions for the Montana/Idaho Airshed Group. The Monitoring Unit issues daily decisions which may restrict burning when atmospheric conditions are not conducive to good smoke dispersion. Burning restrictions are issued for airsheds, impact zones, and specific projects. The monitoring unit is active March through November. Each Airshed Group member is also responsible for smoke management all year.

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The act established a process for designation of Class I and Class II areas for air quality management. Class I areas receive the highest level of protection and numerical thresholds for pollutants are most restrictive for this Class. The large Selway Bitterroot Class 1 area and the Hell's Canyon Class 1 area may be impacted by burning activities in Nez Perce County.

All of the communities within Nez Perce County could be affected by smoke or regional haze from burning activities in the region. Idaho Department of Environmental Quality maintains Air Pollution Monitoring Sites throughout Idaho. The Air Pollution Monitoring program monitors all of the six criteria pollutants. Measurements are taken to assess areas where there may be a problem, and to monitor areas that already have problems. The goal of this program is to control areas where problems exist and to try to keep other areas from becoming problem air pollution areas (Louks 2001).

The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, OAQPS (Organization for Air Quality Protection Standards) is responsible for setting standards, also known as national ambient air quality standards (NAAQS), for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources (Louks 2001).

3.14.1 Fire Mitigation Practices to Maintain Air Quality

Smoke consists of dispersed airborne solids and liquid particles, called particulates, which can remain suspended in the atmosphere for a few days to several months. Particulates can reduce visibility and contribute to respiratory problems. Very small particulates can travel great distances and add to regional haze problems. Regional haze can sometimes result from multiple burn days and/or multiple owners burning within an airshed over too short a period of time to allow for dispersion.

For prescribed fires, there are three principle strategies to manage smoke and reduce air quality effects. They include:

1. **Avoidance -** This strategy relies on monitoring meteorological conditions when scheduling prescribed fires to prevent smoke from drifting into sensitive receptors, or suspending burning until favorable weather (wind) conditions exist. Sensitive receptors can be human-related (e.g. campgrounds, schools, churches, and retirement homes) or wildlife-related (threatened and endangered species and their critical habitats);
2. **Dilution –** This strategy ensures proper smoke dispersion in smoke sensitive areas by controlling the rate of smoke emissions or scheduling prescribed fires when weather systems are unstable, not under conditions when a stable high-pressure area is forming with an associated subsidence inversion. An inversion would trap smoke near the ground; and
3. **Emission Reduction –** This strategy utilizes techniques to minimize the smoke output per unit area treated. Smoke emission is affected by the number of acres burned at one time, pre-burn fuel loadings, fuel consumption, and the emission factor. Reducing the number of acres burned at one time would reduce the amount of emissions generated by that burn. Reducing the fuel beforehand reduces the amount of fuel available. Prescribed burning when fuel moistures are high can reduce fuel consumption. Emission factors can be reduced by pile burning or by using certain firing techniques such as mass ignition.

If weather conditions changed unexpectedly during a prescribed burn, and there was a potential for violating air quality standards or for adverse smoke impacts on sensitive receptors (schools, churches, hospitals, retirement homes, campgrounds, wilderness areas, and species of threatened or endangered wildlife), the management organization may implement a contingency plan, including the option for immediate suppression. Considering 1) the proposed action would result in prescribed fire on a relatively small number of acres, 2) burning as part of this mitigation plan's implementation in the County will most likely occur over a 5-year or 10-year period at a minimum, and 3) the County will adhere to Montana/Idaho Airshed Group advisories and management strategies to minimize smoke emissions, prescribed fire activities would not violate national or state emission standards and would cause very minor and temporary air quality impacts. The greatest threat to air quality would be smoke impacts on sensitive receptors; however, the relative scarcity of sensitive receptors within the County minimizes this potential air quality impact.

In studies conducted through the Interior Columbia Basin Management Project, smoke emissions were simulated across the Basin to assess relative differences among historical, current, and future management scenarios. In assessing the whole Upper Columbia Basin, there was a 43 percent reduction in smoke emissions between the historical and current periods (Quigley and Arbelbide 1997). The projected smoke emissions varied substantially with the vastly different management scenarios. The consumptive demand and passive management scenarios were projected to substantially increase smoke emissions above current levels. The active management scenarios were projected to result in a decrease of current levels.

Although prescribed fire smoke would occur more frequently than wildland fire smoke, since prescribed fires are scheduled during the year, the effects of wildland fire smoke on visibility are more acute. Prescribed fires produce less smoke than wildland fires for comparatively shorter periods, because they are conducted under weather conditions that provide for better smoke dispersion. In a study conducted by Holsapple and Snell (1996), wildland fire and prescribed fire scenarios for the Columbia Basin were modeled. In conclusion, the prescribed fire scenarios did not exceed the EPA particulate matter (PM 10) standard in a 24-hour period. Similar projections were observed for a PM 2.5 threshold. Conversely, all wildland fire scenarios exceeded air quality standards. Similar responses were reported by Huff *et al.* (1995) and Ottmar *et al.* (1996)

when they compared the effects of wildland fire to prescribed fire on air quality. The impacts of wildland fire and management ignited prescribed fire on air quality vary because of the differences in distribution of acres burned, the amount of fuel consumed per acre (due to fuel moisture differences), and the weather conditions in which typical spring and fall prescribed burns occur. This analysis reveals wildland fire impacts on air quality may be significantly greater in magnitude than emissions from prescribed burns. This may be attributable, in part, to the fact that several states within the project area have smoke management plans requiring favorable weather conditions for smoke dispersion prior to igniting wildland fires (Quigley and Arbelbide 1997).

Chapter 4: Summaries of Risk and Preparedness

4 Overview

4.1 Wildland Fire Characteristics

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment, the fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to determine how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect on fire behavior.

4.1.1 Weather

Weather conditions are ultimately responsible for determining fire behavior. Moisture, temperature, and relative humidity determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant affect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

4.1.2 Topography

Fires burning in similar fuel conditions burn dramatically different under different topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influence vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. The combination of light fuels and dry sites lead to fires that typically display the highest rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be “available to burn” a greater portion of the year.

Slope also plays a significant roll in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

4.1.3 Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and home sites (the structures) are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content and continuity and arrangement all have an affect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, "fine" fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease, as surface to volume ratio decreases. Fires in large fuels generally burn at a slower rate, but release much more energy, and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potentially development of crown fire. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determine how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected affect small changes in any single component has on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, the some of the principles that govern fire behavior have been identified and are recognized.

4.2 Nez Perce County Conditions

Vegetative structure and composition within Nez Perce County is closely related to elevation, aspect and precipitation. Warm and dry environments characterize the flat, mid elevation plateaus. Intense agricultural development in these areas limits the establishment of woody tree species or other native vegetation. Dry land farming and ranching activities tend to lower fuel accumulations; thus supporting fires that burn rapidly at relatively low intensities. These fuel types are common in northern Nez Perce County, especially surrounding Lewiston.

South and east aspect slopes are dominated by rangelands and dry site ponderosa pine with a minor Douglas-fir component. This vegetative pattern begins to show a shift toward forested communities dominated by a mixture of Douglas-fir, ponderosa pine, grand fir, and western larch on the higher elevation plateaus and on north and west aspects. Fuel continuity is broken regularly by cleared agricultural ground, logged areas, and roadways. Forested regions possess a greater quantity of both dead and down fuels as well as live fuels. Rates of fire spread tend to be lower than those in the grass and croplands, however, intensities can escalate dramatically, especially under the effect of slope and wind. These conditions can lead to control problems and potentially threaten lives, structures and other valued resources.

Much of the steep, dry slopes that rise from the Snake River, Salmon River, Mission Creek, Big Canyon Creek, and Sweetwater Creek canyons establish the Nez Perce County borders and are primarily covered with light bunch and cheat grasses that typically support very fast moving fires. These slopes are characterized by forested draws, saddles, and benches that not only add

to fuel build ups, but also channel heat and fumes making direct attack efforts difficult and dangerous for firefighters.

These areas are highly valued for their cultural and scenic qualities. Although there are few homes built directly on the steeper gradients, most structures are located along the upper canyon rims. The juxtaposition of these homes to the high fire risk slopes will continue to challenge the ability to manage wildland fires in the wildland-urban interface.

4.2.1 County Wide Potential Mitigation Activities

There are four basic opportunities for reducing the loss of homes and lives to fires. There are many single actions that can be taken, but in general they can be lumped into one of the following categories:

- Prevention
- Education/ Mitigation
- Readiness
- Building Codes

4.2.1.1 Prevention

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective. Prevention campaigns can take many forms. Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be quite effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can be quite effective. It’s impossible to say just how effective such efforts actually are, however the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Slightly more active prevention techniques may involve mass media, such as radio or the local newspaper. Fire districts in other counties have contributed the reduction in human-caused ignitions by running a weekly “run blotter,” similar to a police blotter, each week in the paper. The blotter briefly describes the runs of the week and is followed by a weekly “tip of the week” to reduce the threat from wildland and structure fires. The federal government has been a champion of prevention, and could provide ideas for such tips. When fire conditions become high, brief public service messages could warn of the hazards of misuse of fire or any other incendiary devise. Such a campaign would require coordination and cooperation with local media outlets. However, the outcome is likely to be worth the efforts, costs and risks associated with fighting unwanted fires.

Fire Reporting: Fires cannot be suppressed until they are detected and reported. As the number and popularity of cellular phones has increased, expansion of the #FIRE program throughout Idaho may provide an effective means for turning the passing motorist into a detection resource.

Burn Permits: The issues associated with debris burning during certain times of the year are difficult to negotiate and enforce. However, there are significant risks associated with the use of fire adjacent to expanses of flammable vegetation under certain scenarios. Fire departments typically observe the State of Idaho Closed fire season between May 10 to October 20. During this time, an individual seeking to conduct an open burn of any type shall obtain a permit to prescribe the conditions under which the burn can be conducted and the resources that need to be on hand to suppress the fire, from a State of Idaho fire warden. Although this is a state-wide regulation, compliance and enforcement has been variable between fire districts. Tackling this

issue is difficult. Typically, the duty falls to the chief of whichever fire protection district the burning is planned for. However, this leads to an increased burden on the fire chiefs, who are already juggling other department obligations with obligations to work and to home. There is also considerable confusion on the part of the public as to when a permit is necessary and the procedure for which to obtain the permit. The best-intentioned citizen may unknowingly break this law for a lack of understanding. Clearly, there is a need to coordinate this process and educate the public.

4.2.1.2 Education

Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event.

The majority of the uncultivated vegetation in Nez Perce County is comprised of timberlands and rangelands. These fuels tend to be very flammable and can support very fast moving and intense fires. In many cases, homes can easily be protected by following a few simple guidelines that reduce the ignitability of the home. There are multiple programs such as FIREWISE that detail precautions that should be taken in order to reduce the threat to homes, such as clearing timber or cured grass and weeds away from structures and establishing a green zone around the home.

However, knowledge is no good unless acted upon. Education needs to be followed up by action. Any education programs should include an implementation plan. Ideally, funds would be made available to financially assist the landowner making the necessary changes to the home. The survey of the public conducted during the preparation of this WUI Fire Mitigation Plan indicated that approximately 53% of the respondents are interested in participating in this type of an activity.

4.2.1.3 Readiness

Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

In order to assure a quick and efficient response to an event, emergency responders need to know specifically where emergency services are needed. Continued improvement and updating of the rural addressing system is necessary to maximize the effectiveness of a response.

4.2.1.4 Building Codes

The most effective, albeit contentious, solution to some fire problems is the adoption of building codes in order to assure emergency vehicle access and home construction that does not "invite" a fast and intense house fire. Codes that establish minimum road construction standards and access standards for emergency vehicles are an effective means of assuring public and firefighter safety, as well as increasing the potential for home survivability. County building inspectors should look to the fire departments in order to assure adequate minimum standards. Fire districts may want to consider apparatus that may be available during mutual aid events in order that the adopted standards meet the access requirements of the majority of suppression resources. In Nez Perce County, such standards may be drafted in consultation with the Fire Chiefs in order to assure accessibility is possible for all responding resources.

Coupled with this need is the potential to implement a set of requirements or recommendations to specify construction materials allowed for use in high risk areas of the county. While a resident of Lewiston may not put his or her structure at undue risk by the use of wooden decking materials, a shake roof, or wooden siding, the same structure in Waha would be at tremendous risk through this practice. The Nez Perce County Commissioners may want to consider a policy for dealing with this situation into the future as more and more homes are located in the wildland-urban interface.

4.3 Nez Perce County's Wildland-Urban Interface

Individual community assessments have been completed for all of the populated places in the county. The following summaries include these descriptions and observations. Local place names identified during this plan's development include:

Table 4.1. Nez Perce County Communities

Community Name	Planning Description	Vegetative Community	National Register Community At Risk?[1]
Agatha	Remnant	Rangeland	No
Arrow	Remnant	Rangeland	Yes
Cameron	Community	Rangeland	No
Culdesac	Community	Forestland	Yes
Gifford	Community	Rangeland	Yes
Lapwai	Community	Rangeland	Yes
Leland	Community	Rangeland	No
Lenore	Community	Forestland	Yes
Lewiston	City	Rangeland	Yes
Lookout	Remnant	Forestland	No
Melrose	Remnant	Forestland	No
Peck	Community	Forestland	Yes
Slickpoo	Remant	Forestland	No
Southwick	Community	Rangeland	Yes
Spalding	Community	Rangeland	Yes
Summit	Remnant	Forestland	No
Sweetwater	Community	Rangeland	Yes
Waha	Community	Forestland	Yes
Webb	Community	Rangeland	No

[1]Those communities with a "Yes" in the National Register Community at Risk column are included in the Federal Register, Vol. 66, Number 160, Friday, August 17, 2001, as "Urban Wildland Interface Communities within the vicinity of Federal Lands that are at high risk from wildfires". All of these communities have been evaluated as part of this plan's assessment.

Site evaluations on these communities are included in subsequent sections. The results of FEMA Hazard Severity Forms for each community are presented in Appendix II.

4.3.1 Mitigation Activities Applicable to all Communities

4.3.1.1 Home site Evaluations and Creation of Defensible Space

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Maintaining a lean, clean, green zone within at least 100 feet of structures to reduce the potential loss of life and property is highly recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these environments.

4.3.1.2 Travel Corridor Fire Breaks

Ignition points are likely to continue to be concentrated along the roads and railway lines that run through the county. These travel routes have historically served as the primary source of human-caused ignitions. In areas with high concentrations of resource values along these corridors, fire lines may be considered in order to provide a fire break in the event of a roadside ignition. Access route mitigation can provide an adequate control line under normal fire conditions. Alternatively, permanent fuel breaks can be established in order to reduce the potential for ignitions originating from the main travel roads to spread into the surrounding lands.

4.3.1.3 Power Line Corridor Fire Breaks

The treatment opportunities specified for travel corridor fire breaks apply equally for power line corridors. The obvious difference between the two is that the focus area is not an area parallel to and adjacent to the road, but instead focuses on the area immediately below the infrastructure element. Protection under the high tension power lines is strongly recommended. This may be an opportunity for intensive livestock grazing practices as a tool for reducing fine fuels around significant infrastructure.

4.4 Nez Perce County Community Risk and Potential Mitigation Activities

4.4.1 Vegetative Associations

The vast majority of land within Nez Perce County is native vegetation. More and more areas within the county are being converted to agricultural farmland, sub-divisions, and recreation areas, due to the rise in development within the area. This development is exposing more of the populated areas within the county to wildland fire.

The persistently warm and arid uplands of the county are characterized by continuous expanses of grass and brush rangeland vegetation and timberland to the south and east, capable of supporting large wildland fires. The xeric vegetation and hot, dry and windy conditions increases the potential for large rangeland and timberland fires. The last decades have seen

the proliferation of Cheatgrass, an exotic grass species that is able to out-compete native bunchgrasses. Cheatgrass responds well to soil disturbance and is found in abundance along roadsides, driveways, new construction areas, and in recently burned areas. Yellowstar thistle, a noxious weed, has also become well-established throughout Nez Perce County, particularly in areas disturbed by livestock.

Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period.

4.4.2 Overall Fuels Assessment

Fuels throughout the upland areas of Nez Perce County are quite consistent, dominated by grasslands. Areas in the southern and eastern parts of the county shift more to Douglas-fir and ponderosa pine over-story with a mix of grass, ocean-spray and nine-bark in the under-story. Areas dominated by grass fuel types are very flashy fuels that tend to spread rapidly, but burn at relatively low intensity. Where grasses become less consistent, wind is needed to push fires through the grass. In the southern and eastern region of the county, the fuel type shifts from grassland to more timbered fuel types. Typically, fires in this fuel type support ground fires with some torching, spotting, and jackpotting depending on the amount of ladder fuels present. Where ladder fuels are present, more crowning is possible. However, wind driven fires in any of these fuel types can burn significant acreage in a short period of time. During an August day with 20 mile an hour winds, fires in these fuel types can burn a significant amount of land in a single hour.

Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common. The last decade has seen the proliferation of Cheatgrass and yellowstar thistle throughout many areas within the Clearwater Valley. Cheatgrass and yellowstar thistle are invasive and undesirable species that able to out-compete native bunchgrasses. Both species respond well to soil disturbance and are found in abundance along roadsides, driveways, new construction areas, and in recently burned areas. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period. The fine structure of Cheatgrass and its ability to completely dominate disturbed sites provide a dry, consistent fuel bed for fire. Where the exotic has encroached in timber stands, it now provides a consistent bed of fine fuels that actively carry fire without the wind affect. Because of these characteristics, cheatgrass will support fire during times of the year and under conditions which native vegetation would not sustain a wildland fire. Yellowstar thistle also burns very readily, however, this taller, woodier weed also significantly increases flame lengths making fires much more difficult and dangerous to control. After fire disturbance, native species are often replaced by monocultures of cheatgrass and yellowstar thistle. Because of the their ability to dominate disturbed sites and their propensity to burn, these species also have the ability to remain dominant once a site is disturbed.

4.4.3 Ignition Profile

Natural ignition sources from summertime lightning storms are quite common in Nez Perce County. Lightning strikes in light grass fuels and timbered stands within the county can be quickly extinguished if any precipitation accompanies the storm. Natural ignitions are more common in areas with abundant cheatgrass and conifers, where woody fuels are able to sustain fire during precipitation events, emerging when surface fuels dry. However during dry lightning events, storm cells can ignite dozens of fires throughout wildland areas.

Human caused fires contribute significantly to the probability of fires in this area. Residential living, farming, and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, camp fires, and agricultural equipment are just a few of the countless potential human ignition sources in the area. Power line fires from tree contact can also spark fires, especially during windy conditions.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuels type and fuel moisture as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires in any fuel type.

4.4.4 Overall Community Assessment

The majority of homes and structures within Nez Perce County are at high risk of loss to wildland fire. The prevalence of the dry arid landscape effectively increases the potential for loss to wildland fire in the majority of areas.

Homes within the light grass and sage fuels typical of the uplands are at a low threat to wildland fire, as fire typically spreads quickly and burns at relatively low intensities. However, there are a number of individual homes that are at much higher risk to wildland fire loss in the area, largely due to use of highly ignitable materials in home construction, or by lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. Considering the high spread rates typical in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of a grass and range fire.

The greatest resources at threat in Nez Perce County are the range and recreation resources on the private and public lands in the highland areas of the county. Nez Perce County supports a significant farming and ranching economy that is partially dependant on grazing of these arid lands. Large fires can significantly impact grazing resources and have a significant and detrimental effect to the local farming industry.

4.4.5 Individual Community Assessments

4.4.5.1 Lewiston

Lewiston is located at the junction of Highway 95 and Highway 12, at the confluence of the Clearwater and Snake Rivers. Within the city limits, the community is relatively urbanized, with many roads and green lawns that would not support wildland fire, although several areas within the city limits would provide wildfire hazards due to the complexity of the landscape. Land surrounding Lewiston is dominated by steep arid rangeland, farm and ranch land, and some agricultural use. Some agricultural land provides fuel breaks, within the consistent patches of dried vegetation available to fuel a wildland fire. Because of the urban and dry arid characteristics within the vicinity of the community, the majority of the areas surrounding Lewiston are at a high risk for wildfire.

To the north end of town along the old Lewiston Grade rise the arid grass covered hills north of the Clearwater River. Several houses and small farms exist with some homes sites directly associated with grass and sage fuels. Generally speaking, these homes have green lawns and adequate defensible space surrounding the building site, reducing the threat of fire moving from

the wildlands to the home. There is limited access due to the very steep landscape, providing for poor ingress and egress for both residents and suppression personnel. Furthermore, this steep arid area has limited fire protection. This fire protection is available on a subscription level, provided by a private company. Capabilities are questionable, although several hydrants are located in the area. Overall, the threat to these homes is high, although there are some homes that have adequate defensible space, reducing the homes overall risk. The homes of the area may have defensible space, but the outbuildings do not, exposing private individual's personal property a greater risk of wildfire. The greatest potential for wildland fire development comes from ignitions starting in the vicinity of homes, spreading to the wildlands.

To the west of the Lewiston Airport and east of the Snake River, a number of sub-divisions have been built within the dry, cured rangeland vegetation. Most building sites have green lawns and adequate defensible space surrounding home. However, there are some notable exceptions, with native vegetation directly abutting the home, and flammable landscape vegetation and materials. This significantly increases the potential for fire to travel from the wildland to the home. Most of these sub-divisions have limited access into and out of the housing developments, making escape routes difficult. A number of drives also pass through untreated native fuels, potentially cutting-off access to emergency vehicles. Again, the greatest threat to the area is likely human caused ignitions starting at the home and spreading to the wildlands.

Areas between 8th and 14th Street, the houses are adjacent to grassland and agricultural lands, further increasing the risk of wildfire. Most of the homes in the area have adequate defensible space, but there are exceptions where flashy fuels are in direct contact with the house.

Along the east side of Gun Club Road, several old farm houses and newer sub-divisions exist. These areas are at a high risk of human caused wildfires due to the homes adjacent to the arid rangelands. The flashy fuels provide for high rates of speed, but with low intensities. Several roads into and out of this area do exist for escape routes, and which will also provide as fuel breaks when fires do occur.

Practices associated with orchard operations could potentially increase the potential for ignitions to spread to wildland fuels to the south. Burning of pruned branchwood in proximity to the wildlands could serve as sources for firebrands if burned during dry and windy conditions. Although it appears as there are adequate fuel brakes between the wildlands and pile burn areas, pile burning during adverse conditions could serve as a source for wildland ignitions.

The Lewiston Fire Department provides structural fire protection, while the Idaho Department of Lands is responsible for wildland fire protection in the surrounding area.

4.4.5.2 Lapwai

The Lapwai community sits in the narrow valley along Highway 95 east of Lewiston, and south of the Clearwater River. Lapwai is located on the Nez Perce Indian Reservation. Homes and businesses within the city limits are within relatively urbanized areas, with city streets and green lawns that are devoid of wildland fuels. Much of the lands are non-irrigated, so the grasses become very volatile fuels late in the summer months. Rangeland and grassland dominates the landscape surrounding Lapwai, along with very steep slopes, providing a very arid environment that is at a high risk from wildfire. These fuels tend to be very flashy with high rates of speed, but with low intensities. The town itself is at a lower risk, but the risk to surrounding areas is significantly higher. These areas tend to have limited access and limited fire protection coverage.

Some of the homes within the community have adequate defensible space, although there are exceptions where flammable landscape materials are used, or homes sit against highly flashy

fuels. Many homes that do maintain an adequate defensible space have nearby out-buildings on the property that have very little or no defensible space. This causes an increased risk to the personal property, which could potentially spread to the home itself.

Water resources within the area are limited. Several streams and draws do exist within the community, but tend to dry up by mid to late summer. Several fire hydrants do exist within Lapwai, but not outside the city limits.

Fire protection outside of the city limits is provided by the Lapwai Rural Fire Department, which consists of one type 6 engine with limited capabilities. Due to the lack of equipment, fire suppression is limited. Several private landowners have purchased their own fire equipment for their protection and have helped out the surrounding landowners in the past. The Nez Perce Tribe Protection District also has fire suppression responsibilities around Lapwai.

High risk rangeland fuels and topography coupled with frequent fire occurrence place this community at a high fire risk level. Many needs and mitigation efforts would greatly help the Lapwai community.

4.4.5.3 Culdesac

Culdesac is located on the eastern side of Nez Perce County lying just north of Highway 95. This community is dominated by grasslands, shifting to more timbered land to the southeast up toward Winchester Grade. Overall, grasses and Douglas-fir and ponderosa pine timber types dominate fuels in these areas. Where cheatgrass and yellowstar thistle have not become well established, fine grass fuels are kept to a minimum by grazing. Reducing fine fuels increases the wind speed necessary to carry fire through the wildlands by reducing the consistency of the fuel bed. However, where cheatgrass is well-established, fine fuel continuity is very consistent, reducing the necessary wind speed and increasing the probability of fire spread. Where the shift in fuel types takes place, conifers and grasses help to create a more significant wildfire scenario. Fuel loading tends to be higher with more down and dead material on the ground. This creates a higher intensity fire, further increasing the risks to homes and property in the area. These fires are more difficult to put out and require more people and equipment to actively suppress.

There are scattered homes that have been built upslope from Culdesac in the wildland and urban interface adjacent to dry grass and range fuels and conifer ecosystems. Generally, most homes have adequate defensible space; however, there are some homes that would benefit from further expanding the existing defensible space. This includes the out-buildings. Many homes have adequate defensible space, but the barns, shops, or garages may not. This increases the risk to personal property. A fire could be started in an out-building and spread into the adjacent rangeland or timberland. Access is limited in these areas, with long narrow driveways and poor ingress and egress for both emergency and residential traffic. Fuels upslope from the homes tend to be higher conifer cover, with grass and brush under-story. The amount of ladder fuels in this area under normal weather conditions will be the driving force behind these fires. Fires are also frequently ignited by sparks thrown into cured grasses by passing trains. In many cases, these fires are not sighted until they are of sufficient size to cause suppression problems. Due to the location of the tracks along the south-facing slopes near Culdesac, fires spread rapidly upslope through the dry grasses.

Water sources in the Culdesac area are also limited. Several streams and draws exist in the area, but in the late summer months, a lot of the water has dissipated. Several hydrants do exist within town, but outside of town they do not exist.

The Culdesac Rural Fire Department has responsibility for structural protection in and around the community. The Idaho Department of Lands and the Nez Perce Tribe Protection District are responsible for wildland fire suppression.

4.4.5.4 Clearwater Canyon

The Clearwater Canyon is the area within Nez Perce County from Peck downstream to Lewiston along the Clearwater River. This area is comprised of very steep slopes created by the Clearwater River and dominated by grass and ponderosa pine and Douglas-fir timber types. Many homes exist within this area creating a very fire prone landscape. Access into and out of this area is limited due to the steep nature of the landscape. Driveways are usually long and narrow, which limits the accessibility for fire equipment. Defensible space surrounding the homes is somewhat inadequate for the prevailing winds of the area. Normally, a 100 to 200 foot buffer of defensible space is needed down-wind, but due to the steep nature of the area, little or no defensible space was created when the area was developed. Very flashy fuels and landscape materials surround these homes, further increasing the risk of wildfire. Furthermore, the home may have adequate defensible space, but garages or outbuildings may not. These structures that are adjacent to flammable materials could potentially spread into the home itself.

Several fire departments provide limited coverage within the Clearwater Canyon. Sunnyside Rural Fire Department, Peck Volunteer Fire Department, Big Canyon Fire Protection District, and Kamiah Rural Fire Protection District share suppression responsibilities throughout different areas of the canyon; however, not all developed areas are covered. Both sides of the valley have a high risk of wildfire. An example of the fire potential of the valley is the Mile Post 59 Fire just east of Kamiah. An active railroad system is also present along the Clearwater River, greatly increasing the ignition sources for the area.

The Clearwater River flows through this area providing an adequate water resource, but the narrow winding roads that exist within the area create a long turn around time when water is needed or runs out.

4.4.5.5 Gifford Area

Gifford is a small farming community located along County Road P3 on the flatlands between the Jack Creek and Cottonwood Creek canyons. The remnant communities of Melrose, Lookout, and Summitt are also located in this area. The larger drainages of Big Canyon Creek and Lapwai Creek lie to the east and west respectively. The area in-between is characterized by gently rolling hills that have been extensively developed for agricultural use. However, there is scattered timber along Gifford-Reubens Road and in nearby canyons. The Gifford area is within the Nez Perce Indian Reservation on the most northern fringes of the Camas Prairie.

Many homes in the greater Gifford area generally have a large defensible space around structures in the form of pasture for livestock or farm fields. A fire start in a field or pasture can generally be quickly controlled by modifying vegetation and creating fuel breaks. Nevertheless, fires in this type of light, flashy fuels will tend to spread very rapidly leaving little time to effectively protect structures.

The slopes of Big Canyon, Lapwai Creek canyon, Jacks Creek canyon, and Cottonwood Creek canyon are characterized by dry east and west aspects. Low growing grasses on these slopes cure early in the summer becoming exceedingly prone to ignition. The timbered areas along County Route P3 and in the canyons are typically drier habitat types dominated by ponderosa pine, Douglas-fir, and some western larch and grand fir. Historically, the understories of these stands were relatively open; maintained by periodic, low intensity surface fires. Years of fire

suppression has led to more overcrowded conditions with dense accumulations of dead and down wood and other surface fuels. Additionally, regeneration has begun to encroach on many naturally open meadows. Enhanced vertical and horizontal fuel continuity can lead to larger fires with increased occurrences of crowning and torching. These hazardous fuel complexes coupled with dry summers and numerous ignition sources significantly increase the probability of an intense and destructive wildfire.

There is currently no structural fire protection available in Gifford; however, the Idaho Department of Lands, Craig Mountain District and the Nez Perce Tribe provide wildland fire protection. Due to the lack of a localized fire protection service and the rural nature of the community, response time for emergency equipment from other communities or agencies will be considerable. Therefore, it is even more important for homeowners to implement fuel reduction projects and other fire mitigation efforts.

4.4.5.6 Kendrick and Juliaetta

The communities of Kendrick and Juliaetta are located within the steep Potlatch River canyon along the southern border of Latah County and the northern border of Nez Perce County. Due to the close proximity and geographic similarities between the two communities, they will be assessed together.

Deeply incised canyons carved by the Potlatch River and smaller creeks and drainages are the dominant landscape feature of the area. The Potlatch River serves as the border between Latah County and Nez Perce County. Highway 3 provides the primary access to Kendrick from Deary and continues south through Juliaetta, joining with Highway 12 downstream at the Clearwater River confluence. Highway 99 also provides access from Troy. Both Highway 3 and 99 descend steep grades from the Prairie Steppe region above into the deep canyon carved by the Potlatch River. Other drainages that join the Potlatch from the north include Bear Creek in the Kendrick area and Middle Potlatch Creek and Little Potlatch Creek in the Juliaetta area. These drainages have carved steep canyons through the underlying basalt as well, giving the area its deep canyon landscape.

The intersections of the Potlatch River and smaller feeder drainages create multiple aspects with very steep slopes. The majority of community's structures are located on the Latah County side of the river. Most this area has a southerly aspect, resulting in hot, dry environmental conditions. The Nez Perce County side of the canyon, where many Kendrick and Juliaetta residences are located, has a more northwestern aspect, which allows for somewhat more shaded conditions. Nevertheless, this slope is dominated primarily by native grasses, brush, and a few patches of Douglas-fir. The thin soils Potlatch canyon also have very low moisture retention ability, resulting in dry vegetative species composition. The combination of steep slopes and xeric species composition result in a landscape that is very fire prone.

The homes and businesses immediately adjacent to the Highway 3 corridor are at low risk to wildland fire. Generally, these structures are surrounded by urban landscaping, with the dry, xeric slopes behind and leading away from the community centers. Fires starting low on the steep slopes would quickly spread up and away from most homes and businesses.

However, homes at mid-slope locations or near the canyon rim are at a much higher fire risk. Fires originated below and spreading to homes upslope would burn with very rapid rates of spread and at high intensities. Without adequate defensible space and use of fire retardant building materials these homes would be at a significantly elevated risk.

Roads in this area are quite steep, although they appear to be wide enough to accommodate most emergency traffic. The road network in the area does provide for a alternative escape

routes to the north and south in the event the main highways were compromised. However, these roads are steep with many switchbacks, slowing egress.

4.4.5.7 Peck

This little town, one mile above the mouth of Big Canyon Creek and the Clearwater River, has historically been threatened by wildfire. In 1967 and 1994, large fires threatened the community and out lying structures. Radical elevation changes from 1,000 to 3,000 feet on the east and west sides of town contribute to this risk. Strong diurnal winds from a watershed greater than 100,000 acres causes extreme up and down slope drafts. The confluence of Little Canyon and Big Canyon Creeks is in the town of Peck. Little Canyon comes in from the east and hooks south, paralleling Big Canyon. Little Canyon is narrower and steeper than Big Canyon with slopes up to 100%.

Both canyons are about 50% timbered with, typical of canyon type, even aged stands and mixed ponderosa pine and Douglas-fir forests on drier sites and higher elevations. There is grand fir in the canyon bottoms and draws. The rangelands are badly infested with yellow star thistle and cheat grass. These species burn more intensively than the native blue bunch and fescues, with flame lengths of three to five feet. Past fires have created fuel breaks and some heavy brush regeneration. The weed problem has become more problematic since these fires occurred.

Craig Mountain Fire Protection District and Maggie Creek Fire Protection District adjoin on Big Canyon Creek, so any wildfire reported near Peck would be a boundary fire. The IDL stages fire resources at the Clearwater Area Office in Orofino, which is a 15 minute response time. Big Canyon Rural Fire Department covers structural fires around town and outlying areas. This is a small volunteer fire department with limited trained personnel.

Peck does have a growing urban interface, especially along the Clearwater River Corridor. The canyons have limited access on narrow mountain roads. The steep terrain, flashy fuels, and down slope night winds serve as a wick to the town of Peck.

4.4.5.8 Potlatch Ridge Area

The communities of Southwick, Leland, and Cameron are located on Potlatch Ridge between the Potlatch River drainage and the Clearwater River drainage just north of the Nez Perce Indian Reservation. Residents of the Potlatch Ridge area are primarily rural farmers and ranchers with relatively large landholdings. Both Southwick and Cameron are accessed via County Route P1, which runs from Kendrick over Potlatch to Ahsahka in Clearwater County. Leland is located at the confluence of Leland Road and Cherry Lane Road. Both the Kendrick Grade and the Ahsahka Grade accessing the ridge are steep and winding; however, once on top, most of the landscape is relatively flat.

Due to the mild topography and extensive agricultural development, Potlatch Ridge communities have a low risk of experiencing wildland fire. Fires in unharvested crop fields or CRP ground may burn more intensely and with larger flame lengths than grazed pasture; however, these fires are typically controlled by vegetation modification using available farm equipment. Uncontrolled field fires will likely move very rapidly, particularly under the influence of wind. Timber in the Bedrock Creek and Louse Creek canyons south of Southwick could potentially support a higher intensity wildfire; thus, homes nearer the canyon rims are at much higher risk. In general, fires originating in the canyons can be controlled by vegetation modification as it enters the farm and pasture fields.

Residents of Potlatch Ridge currently have no structural fire protection; however, the Idaho Department of Lands provides wildland fire protection.

4.4.5.9 Waha and Soldiers Meadow Area

The Waha area is a large group of about 120 homes located in the southern region of Nez Perce County. Access into Waha is by Waha Road south of Lewiston. Infrastructure includes many roads, power-lines, and homes. The area is an unincorporated part of Lewiston, mainly an urban farming community. Vegetation in the area is comprised of agricultural fields to the north and east and rangeland and timberland to the west and south. The timberland is dominated by Douglas-fir over-story, with ninebark and ocean-spray under-story. Much of the Douglas-fir has become infested with dwarf mistletoe. Although this is generally not fatal to the tree, it does create dense "brooms". "Brooms" on lower branches can act as ladder fuels, which may lead to a much more intense and difficult to control crown fire. Overall, wildfires in this timber type will mainly depend on the type of management in the area. Additionally, dying grand fir along the West Fork of Sweetwater Creek west of Lake Waha increases the potential of a high severity wildfire by increasing the amount of dead fuels readily available to burn. The area is divided into several different ownerships, so the potential fire hazard ranges from low intensity ground fires, to higher intensity crown fires, jackpotting, spotting, and torching. Fires within the grasslands tend to be low intensity and high rate of spread surface fires. The lack of grazing on surrounding public lands has led to some build up of fine fuels and, therefore; an increased fire risk. Homes and outbuildings within the area have little or no defensible space and are scattered throughout the area. Driveways are usually long narrow roads which limit the accessibility for fire suppression equipment and could potentially burn over, thereby closing access routes into and out of the property.

The Soldiers Meadow Reservoir is located southeast of Lake Waha along the Soldiers Meadow Road. Land surrounding the lake is primarily privately owned; however, the Fish and Game and the Nez Perce Tribe do own relatively large parcels of land nearby. Soldiers Meadow Reservoir lies in a frost pocket; thus, lodgepole pine is the predominant timber type. Much of the timbered ground on all ownerships in the surrounding area and along the access route has been harvested in the last few decades; therefore, the overstory is relatively well spaced. The understory consists of various grasses as well as ninebark, oceanspray, and several other brush species. Fire behavior will range from intense, stand replacing fires to low intensity surface fires depending on past management regimes. Primitive camp sites, picnicking areas, and fishing access points have been established around the reservoir and are well used by Nez Perce and neighboring County residents.

Many homes and cabins have been built throughout the Soldiers Meadow area extending from the Nez Perce County line down the Waha Grade. Some homeowners have created a defensible space around their structures by clearing timber and other hazardous fuels, landscaping, and using appropriate construction materials; however, there are some that have not taken these wildfire mitigating actions and are, therefore, at much higher risk of loss due to uncontrolled wildfire. Access routes are also an issue. Long, narrow private driveways make many homes inaccessible to fire suppression equipment. Steep pitches, low overhead clearance, and no turnouts or turnaround areas put many homes at an increased fire risk.

Fire suppression resources in both the Waha and Soldiers Meadow areas tend to have long response times due to the lack of fire protection within the community. The Clearwater Fire Service does offer limited structural fire protection to Waha residents; however, this is by subscription only. Road signs and address markings in the Waha and Soldiers Meadow vicinities are inadequate and could further delay the response times. Due to the high recreation

use at Waha Lake and Soldiers Meadow Reservoir, the number of ignition sources is very abundant; thus, further increasing the wildfire risk to the communities.

4.4.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Nez Perce County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving the passing fire front is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes survivability can be greatly enhanced by following a few simple guidelines that reduce the ignitability of the home.

"Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create effective defensible space. Residents of Nez Perce County should be encouraged to work with local fire departments and fire management agencies within the county to complete individual home-site evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

Specific recommendations for each community follow:

4.4.6.1 Lewiston

- *Homesite Evaluations and Creation of Defensible Space*

  Individual home site evaluations along the Old Lewiston Grade, the area west of Lewiston Airport, Gun Club Road, the area between 8th and 14th Street, and other areas where the wildland urban interface exists can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most homes provides some protection. However, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

- *Road Signage*

  Continued signing of roads and house numbers in order to facilitate emergency response. Post clear road signs warning of traffic restrictions, such as dead-ends, and weight restrictions for roads and bridges.

- *Fire Protection*

  Developing a Lewiston-Waha Rural Fire Department will help in the wildfire protection of several out-lying subdivisions in the area. This may require more wildland fire equipment or departments. Communication or joint coverage from other fire departments could also be done to achieve greater coverage to these target areas.

4.4.6.2 Lapwai

- *Road Signage*

Continued signing of roads and house numbers in order to facilitate emergency response. Post clear road signs warning of traffic restrictions, such as dead-ends, and weight restrictions for roads and bridges.

- *Homesite Evaluations and Creation of Defensible Space*

  Individual home site evaluations surrounding the community can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most homes provides some protection. However, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

- *Fire Protection*

  Increasing the service area and capabilities of Rural and City Fire Departments will help in the wildfire protection of several out-lying communities in the area. This may require more equipment and personnel for existing departments or creation of new fire districts altogether. Communication or joint coverage from other fire departments including the Idaho Department of Lands and the Nez Perce Tribe Protection District could also be done to achieve greater coverage to these target areas. Additionally, having a reliable water source nearby would be highly conducive to efficient and effective fire suppression. This may be accomplished by establishing man-made ponds or installing underground water storage tanks.

4.4.6.3 Culdesac

- *Homesite Evaluations and Creation of Defensible Space*

  Individual home site evaluations wherever rangeland or timberland fuels are in proximity to homes and improvements can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most homes provides some protection. However, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics.

- *Travel Corridor Fire Breaks*

  Ignition points are likely to be concentrated along the roads and travel corridors. In areas with high concentrations of resource values along these corridors, plow or disk lines may be considered in order to provide a fire break in the event of a roadside ignition. By passage with a disk parallel to an access route can provide an adequate control line under normal fire conditions.

  Alternatively, permanent fuel breaks can be established in order to reduce the potential for ignitions originating from the highway to spread into the surrounding lands. Application of a cheatgrass-specific herbicide such as Plateau followed by replanting with fire-retardant grass species such as Crested Wheatgrass can provide a longer-term firebreak.

- *Continued Grazing of Rangelands*

Continued grazing of public and private lands will continue to keep fine fuels reduced, increasing the wind speed necessary to push fire through the rangelands. Grazing will reduce fine fuels as well as continue to contribute to the ranching economy of the area.

- *Road Signage*

  Continued signing of roads and house numbers in order to facilitate emergency response. Post clear road signs warning of traffic restrictions, such as dead-ends, and weight restrictions.

- *Fire Protection*

  Increasing the service area and capabilities of Rural and City Fire Departments will help in the wildfire protection of several out-lying communities in the area. This may require more equipment and personnel for existing departments or creation of new fire districts altogether. Communication or joint coverage from other fire departments including the Idaho Department of Lands and the Nez Perce Tribe Protection District could also be done to achieve greater coverage to these target areas. Additionally, having a reliable water source nearby would be highly conducive to efficient and effective fire suppression. This may be accomplished by establishing man-made ponds or installing underground water storage tanks.

4.4.6.4 Clearwater Canyon

- *Homesite Evaluations and Creation of Defensible Space*

  Individual home site evaluations where the wildland urban interface exists can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most homes provides some protection. However, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

- *Road Signage*

  Continued signing of roads and house numbers in order to facilitate emergency response. Post clear road signs warning of traffic restrictions, such as dead-ends, and weight restrictions.

- *Fire Protection*

  Increasing the service area and capabilities of Rural and City Fire Departments will help in the wildfire protection of several out-lying communities in the area. This may require more equipment and personnel for existing departments or creation of new fire districts altogether. Communication or joint coverage from other fire departments including the Idaho Department of Lands could also be done to achieve greater coverage to these target areas. Additionally, having a reliable water source nearby would be highly conducive to efficient and effective fire suppression. This may be accomplished by establishing man-made ponds or installing underground water storage tanks.

4.4.6.5 Kendrick and Juliaetta

- *Homesite Evaluations and Creation of Defensible Space*

The overall wildland fire risk in the Kendrick-Juliaetta area is moderate due primarily to the residential development of the steep, arid slopes of the Potlatch Canyon. In order to reduce the risk to homes located on fire-prone areas, home defensibility measures should be adopted. Homes and businesses within the bottom of the canyon are at very little risk.

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics, including the increased hazard associated with use of flammable building material and the risk associated with locating homes on steep, dry slopes. Creating or expanding defensible space around structures that are at any degree of risk can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees and brush in the immediate vicinity of the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Adopting FIREWISE standards would help to further reduce the potential loss by educating landowners of simple precautions that can help safeguard their home.

- *Access Issues*

  Creating and widening turnouts and thinning fuels along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression vehicles and personnel. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire.

- *Road Signage*

  Providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing escape routes, and pruning trees around power lines can also help to further reduce the overall risk to the area.

- *Fire Protection*

  Structural protection for Kendrick and Juliaetta is provided by the Kendrick City Fire Department and the Juliaetta City Fire Department, respectively. There is no rural structural fire protection in this area; however, the Ponderosa Area of the Idaho Department of Lands provides wildland fire protection. The newly formed Nez Perce County Fire Department will also respond to fires along the highway and on the Nez Perce County side of the Potlatch River.

  Wildland fire protection is provided by the Ponderosa Area of the Idaho Department of Stale Lands. The office is located at 3130 Highway 3 in Deary, Idaho. The Fire Protection District encompasses approximately 732,000 acres. The close proximity of the Ponderosa District provides quick initial attack response to wildland fires in the area.

4.4.6.6 Gifford Area

- *Homesite Evaluations and Defensible Space*

  Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Nez Perce County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the

Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Gifford and the surrounding area should be encouraged to work with local fire departments and fire management agencies within the county to complete individual homesite evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

- *Fire Protection*

  The creation of a new fire district that includes residents of Gifford and concentrations of homes in the surrounding area would be a first step in mitigating wildland fire risk to the area. This should be a priority in the overall County Fire Mitigation Plan. In the absence of fire protection, homeowners need to take additional precautions in order to increase the defensibility of their homes and to provide safe travel routes.

- *Infrastructure*

  Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads and power line right-of-ways. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

- *Accessibility*

  Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

4.4.6.7 Peck

- *Homesite Evaluations and Creation of Defensible Space*

  Individual home site evaluations where the wildland urban interface exists can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most homes provides some protection. However, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

- *Road Signage*

  Continued signing of roads and house numbers in order to facilitate emergency response. Post clear road signs warning of traffic restrictions, such as dead-ends, and weight restrictions.

- *Fire Protection*

  Increasing the service area, capabilities, and training of the Big Canyon Rural Fire Department will help in the wildfire protection of several out-lying communities in the area. This may require more equipment and personnel. Communication or joint coverage from other fire departments including the Idaho Department of Lands could also be done to achieve greater coverage to the target area. Additionally, having a

reliable water source nearby would be highly conducive to efficient and effective fire suppression. This may be accomplished by establishing man-made ponds or installing underground water storage tanks.

4.4.6.8 Potlatch Ridge Area

- *Homesite Evaluations and Creation of Defensible Space*

The communities of Southwick, Leland, and Cameron, located on Potlatch Ridge, are at low risk of wildland fire due primarily to its agricultural development and relatively flat topography. The higher risk forested areas south of Southwick in the Louse and Bedrock Creek canyons could potentially support a severe wildland fire; however, the likelihood of a fire reaching any of the communities is low. Homes in outlying areas closer to or surrounded by timber are at much higher risk. Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home.

- *Accessibility*

  Creating and widening turnouts and thinning fuels along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

- *Community Defensible Space*

  In general communities in this area should focus on small projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridges, identifying dead end roads, signing escape routes in residential areas, and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Thinning and grazing on public lands near the wildland urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

4.4.6.9 Waha and Soldiers Meadow Area

- *Homesite Evaluations and Creation of Defensible Space*

  Individual home site evaluations where the wildland urban interface exists can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most homes provides some protection. However, maintaining a lean, clean, green zone around structures to reduce the potential loss of life and property is recommended. Assessing individual homes in

the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

- *Road Signage*

  Continued signing of roads and house numbers in order to facilitate emergency response. Post clear road signs warning of traffic restrictions, such as dead-ends, and weight restrictions.

- *Recreation Areas*

  Public recreation areas around Lake Waha and Soldiers Meadow Reservoir should be maintained free of brush, excess grass, garbage, and other hazardous fuels. Establishment of designated fire pits, barbeque stands, and camping areas will reduce the potential for escaped fires. Posting of fire hazard warning signs will also help reduce the wildfire risk.

- *Fire Protection*

  Developing a Lewiston-Waha Rural Fire Department will help in the wildfire protection of several out-lying subdivisions in the area. This may require more wildland fire equipment or creation of new departments. Communication or joint coverage from other fire departments could also be done to achieve greater coverage to these target areas. Additionally, having a reliable water source nearby would be highly conducive to efficient and effective fire suppression. This may be accomplished by establishing man-made ponds or installing underground water storage tanks.

4.5 Fire Fighting Resources and Capabilities

The Fire Fighting Resources and Capabilities information provided in this section is a summary of information provided by the Rural Fire Chiefs or Representatives of the Wildland Fire Fighting Agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. ***In an effort to correctly portray their observations, little editing to their responses has occurred.*** These summaries indicate their perceptions and information summaries.

4.5.1 Wildland Fire Districts

4.5.1.1 Nez Perce County Fire Department

Table 4.2 Nez Perce County Fire Department

Ron Hall, Chief, Lewiston, ID Phone: (208) 799-3090 10/02/02

The Nez Perce County Fire Department is a county based volunteer organization, which is managed by the Fire Chief. The department responds to wildland, agricultural, and vehicle fires throughout Nez Perce County. The Nez Perce County Fire Department has handled fires as big as 3,000 acres and as many as three fires at one time.

	Item	Description	Existing	Needed	Details
Personnel	Basic/Intermediate Member	Responds to fires has had some training	50		There are approximately 50 volunteers
	Advanced Member		2		
Training	Basic Wildland		2	50	

Table 4.2 Nez Perce County Fire Department

Ron Hall, Chief, Lewiston, ID Phone: (208) 799-3090 10/02/02

	Training				
	Basic Structural Training		1		
	Haz Mat Education		2		
	First Aid Training		2		
Protective Equipment	Shirts		20	40	
	Gloves	Leather		40	
	Hard Hats		10	40	
	Goggles	Wildland		6	
	Fire Shelters	NFESH0169	10	20	
Hand Tools	Shovels		10	10	
	Pulaski's		10	10	
	Fire Swatters		25		
	McLeod's		10	10	
Communications	Mobile Radios	Kenwood	5		Multi-Frequency
	Base Station	Kenwood	1		155.595 Frequency
	Repeater	Kenwood	1		Tone 1, Teaken Butte
	Repeater	Kenwood	1		Tone 2, Lewiston Hill
	Repeater	Kenwood	1		Tone 4, Lapwai Area
	Repeater	Kenwood	1		Tone 5, Cottonwood Butte
	Dispatch		5		On duty 7 days/week, 24 hours/day
Vehicles	Wildland Engine	Dodge 4X4, 3/4 ton, 200 Gal. Baffled tank	1		
	Wildland Engine	Chevrolet 4X4, ¾ ton, 200 Gal. Baffled tank	2		
	Wildland Engine	Ford 4X4, 1/2 ton, 100 Gal. tank	1		
	Wildland Engine	Dodge 2X4, 1/2 ton, 100 Gal. tank	1		
	Wildland Engine	2 1/2 ton 6X6, 800 Gal. Baffled tank	1		
Other Equipment	Back Pack Pump		15		
	Portable Pump		2		
	Agricultural Tractors		Numerous		Depending on Location
	Dozers		Numerous		Available from County Road Department

4.5.1.2 Potlatch Corporation Fire Department

Table 4.3 Potlatch Corporation Fire Department

Ken Webster, Chief, Lewiston, ID Phone: (208) 799-0123

Potlatch Corporation Fire Department is a company based organization. There are 19 firefighters on staff, four fire fighters per shift.

Potlatch Corporation Fire Department has mutual aide agreements with: Asotin County, and the City of Lewiston.

	Item	Description	Existing	Needed	Details
Vehicles	Engine	1990 GMC, 1250 GPM Pump, 500 Gal. Cap. tank	1		
	Engine	1993 GMC, 1250 GPM Pump, 750 Gal. Cap. tank, with foam	1		
	Water Truck	1995 GMC, 500 GPM pump, 1,800 Gal. Cap. tank, 2,100 Gal. Fol-da-tank	1		
	Ambulance	1978 Dodge Van	1		
	Equipment Van	1973 Ford	1		
	Van	1974 Ford Van, SCBA, Gas Monitoring, Absorbents	1		
	Brush Truck	1987 GMC 4X4, 95 GPM pump, 300 Gal. Cap. tank	1		
	Brush Truck	1987 GMC 4X4, 95 GPM pump, 200 Gal. Cap. tank	1		
	Pickup 4X4	1988 Chevrolet 4X4	1		
	Pickup 4X4	1979 GMC 4X4, 250 GPM pump, 300 Gal. Cap. tank	1		
	Sport Utility Vehicle	1993 Chevrolet Suburban	1		

4.5.1.3 Idaho Department of Lands – Craig Mountain Area

Table 4.4 Idaho Department of Lands - Craig Mountain Area

Thom Hawkins, Fire Warden Phone: (208) 924-5571 01/13/03

	Item	Description	Existing	Details
Protective Equipment	Outfit		50	
Hand Tools	Chainsaw		17	
	Misc.		50+	
Communications	Portable Radios	King	13	
	Base Station	Motorola	1	Craigmont

Table 4.4 Idaho Department of Lands - Craig Mountain Area

Thom Hawkins, Fire Warden Phone: (208) 924-5571 01/13/03

	Repeaters		1	Cottonwood Butte
	Dispatch		1	Secretary, full-time
Vehicles	Wildland Engine	Type 4	1	
	Wildland Engine	Type 6, 4X4	4	
	Wildland Engine	1970 Gamma Goat, 200 gal	1	
	Engine Patrol	1972 Jeep, 50 gal	1	
	Water Tender	1969 Type 3, 6X6, 2 1/2 ton, 1,200 gal	1	
	4X4 Pickup	1991-2002 1/2 ton	7	
	Crew cab Pickup	1 ton, 4X4	2	
	Stake body Truck		2	
	Backhoe		1	
	Dozer	Cat D-5	1	
	Transport	35 ton lowboy	1	
	ATV	Yamaha	5	
Aircraft	Helicopter	Hughes 500	1	
	Air Tankers		2	
Other Equipment	Trailer	ATV	2	
	Water Trailer		1	
	Water Tank	1,800 gal	1	
	Water Tank	2,000 gal	1	
	Water Tank	2,100 gal	1	
	Pressure Pump		3	
	Volume Pump		2	
	Backpack Pump		2	
	Torches	Propane	6	
	Foam Equipment		1	unit on Type 4 engine

4.5.1.4 Idaho Department of Lands – Ponderosa Fire Protection District

Table 4.5 Idaho Department of Lands-Ponderosa Fire Protection District

Roger Kechter, Fire Warden Phone (208)-877-1121 6/14/03

Ponderosa Fire Protection District is a state based organization with protection responsibilities for forested lands in most of Latah and the northern most part of Nez Perce County. Forest land in the eastern most portion of Latah County is protected by the Clearwater-Potlatch Timber Protection Association out of Orofino and Elk River. There is a 50 person fire cache at the Ponderosa FPD office.

Equipment Type	Size	Year	Make	Model	Capacity
18 Chainsaws	Various	1982-2002	Stihl	032 to 046	20" to 28" Bars
ATV	350 cc	1988	Yamaha	Big Bear	
ATV	350 cc	1997	Yamaha	Big Bear	
ATV	350 cc	1999	Yamaha	Big Bear	
ATV	600 cc	1999	Yamaha	Grizzly	14 Gal.
ATV	400 cc	1999	Yamaha	Kodiak	

Table 4.5 Idaho Department of Lands-Ponderosa Fire Protection District

Roger Kechter, Fire Warden Phone (208)-877-1121 6/14/03

ATV	400 cc	2001	Yamaha	Big Bear	
Crew-Cab	1 T 4X4	1993	GMC	3500	
Crew-Cab	1 Ton 4X4	1995	Chevrolet	3500	
Engine	Type 6 4X4	1968	Jeep	M-715	200 Gal.
Engine	Type 4 4X2	1996	Ford	F-700	650 Gal.
Engine	Type 6 4X4	1992	GMC	3500	200 Gal.
Engine	Type 5 4X4	2000	Ford	F-550	500 Gal.
Pickup	1/2 Ton 4X4	1991	GMC	1500	
Pickup	1/2 Ton 4X4	1994	GMC	1500	
Pickup	1/2 Ton 4X4	1994	GMC	1500	
Pickup	1/2 Ton 4X4	1996	Dodge	1500	
Pickup	1/2 Ton 4X4	1997	Chevrolet	1500	
Pickup	1/2 Ton 4X4	1999	Chevrolet	1500	
Pickup	1/2 Ton 4X4	1999	Chevrolet	1500	
Pickup	1/2 Ton 4X4	1999	Chevrolet	1500	
Pump	1 1/2 Inch	1989	Wajax-Pacific Mark III	Pressure	83 GPM
Pump	1 1/2 Inch	1990	Wajax-Pacific Mark III	Pressure	83 GPM
Pump	1 1/2 Inch	1971	Gorman Rupp	Pressure	55 GPM
Pump	1 Inch	1991	Shindaiwa GP-25	Mini	37 GPM
Pump	2 Inch Volume	1990	Homelite	Volume	170 GPM
Pump	1 1/2 Inch Volume	2002	Honda	Volume	106 GPM
Slip-in Pump			Simms Tank/WA-7 Pump		100 Gal.
Slip-in Pump			Simms Tank/Eco Pump		50 Gal.
Snowmobile		1990	Ski-Doo	Tundra	
Snowmobile		1990	Ski-Doo	Tundra	
Tank, Portable			Fold-a-Tank	Self Supporting	1800 Gal
Tank, Portable			Aluminum		2800 Gal
Trailer	Utility				1 Ton
Trailer	Snowmobile	1990	Trac-Pac		
Trailer	ATV	1990	Homemade		1/4 Ton

4.5.1.5 Idaho Department of Lands – Maggie Creek Area

Table 4.6. Idaho Department of Lands - Maggie Creek Area

David Summers, Fire Warden Phone: (208) 935-2141

	Item	Description	Existing	Details
Protective Equipment	Shirts	Nomex	60	

Table 4.6. Idaho Department of Lands - Maggie Creek Area

David Summers, Fire Warden Phone: (208) 935-2141

	Pants	Nomex	52	
	Boots	Wildland Leather	0	
	Gloves	Leather	36	
	Hard Hats	Wildland	18	
	Goggles	Wildland	20	
	Headlamps		50	
	Fire Shelters		18	
	Breathing Apparatus		0	
Hand Tools	Shovels		45	
	Pulaski's		40	
	McLeod's		10	
	Combination		10	
	Green Grubber		3	
	Chainsaw		10	
Communications	Hand-held Radios	King	16	
	Mobile	Midland, Motorola	12	
	Base Station	Motorola	1	
	Repeaters		3	Wood rat, Teaken, Cottonwood Butte
	Dispatch		1	24 hours/day, 7 days/week
Vehicles	Wildland Engine	2001 Ford F450 4x4 Type 6, 300 gal	1	
	Wildland Engine	1995 Chevrolet 3500 4X4 Type 6, 250 gal	1	
	Wildland Engine	1988 GMC 7000 Type 4, 700 gal	1	
	Utility Vehicle	1993 GMC Crew cab	1	
	Utility Vehicle	1999 Chevrolet Tahoe	1	
	4X4 Pickup	1991-2002 1/2 ton	8	
	Truck	1950's 2 1/2 ton flatbed	1	
	ATV	Honda 4 wheel drive	3	
	ATV	Yamaha 2 wheel drive	1	
Other Equipment	Volume Pump	Honda	1	
	Pump	Mark III	2	
	Pump	Mark 26	1	
	Tank	2500 gal port-a-tank	1	
	Tank	1500 gal port-a-tank	1	
	Portable Pumps		2	
	Blower	Portable Gas	2	
	Drip Torches		8	
	Torches	Propane	6	

Table 4.6. Idaho Department of Lands - Maggie Creek Area

David Summers, Fire Warden Phone: (208) 935-2141

Foam Equipment	1	Unit on Type 4 engine

4.5.1.6 Clearwater Power Company

Table 4.7 Clearwater Power Company

Marilyn Black, Lewiston, ID Phone: (208) 743-1501

	Item	Description	Existing	Needed	Details
Vehicles	Pumper Truck		2		

4.5.1.7 Clearwater Fire Service

Table 4.8 Clearwater Fire Service

Dave Ellsworth, Chief, Lewiston, ID 83501, Phone: (208)743-9022

Clearwater Fire Service volunteer fire department subscription fire service serving rural areas of Nez Perce County. Fire suppression equipment dispersed in three locations for better response to structural fires and wildland fires. Command structure includes chief, assistant chief, captains, fire fighters and auxiliary (support) volunteers. Office space 300 square feet. Administered by the Chief and a board of directors. Current incident capacity is one single-family dwelling or two 20 acre wildland fires. Recovery time approximately 1 hour.

	Item	Description	Existing	Needed	Details
Personnel	Basic Member	Structure academy, wildland training, on going training.	12	Additional needed.	Meet national standards: three for structural and wildland, four for structural, one for wildland. Also, three firefighters and two support personnel.
	Intermediate Member	Above plus live fire experience.	8	Additional Needed	Six meet national standards for wildland and structural. One wildland. One structural.
	Advanced Member	Above plus instructor level, fire investigation.	3	Additional Needed	Two meet national standards for wildland and structural. One meets national standards for structural.
Training	Wildland Training			Squad and Engine boss	Training providers: IDL, US Forest Service, White Pine Fire, and in-house.
	Structural Training			Academy	In house with state certified instructors.
	Haz Mat Education			Hazmat	In house, state, McGregor Co.
	First Aid Training				
Protective Equipment	Shirts	Wildland coveralls	20		
	Turnouts	Structure turnouts	15		
	Boots	Leather			

Table 4.8 Clearwater Fire Service

Dave Ellsworth, Chief, Lewiston, ID 83501, Phone: (208)743-9022

	Gloves		25		
	Hard Hats		25		
	Goggles		4	20	
	Headlamps		4	20	
	Fire Shelters		4	20	
	Breathing Apparatus	SCBAs	10	10	
Hand Tools	McLeod's		4	10	
	Pulaskis		6	8	
	Adz axes		3	5	
	Fire Swatters		1	9	
	Backpack sprayers			6	
	Fusees			One case	
	Drip torch		1	2	
Communications	Portables	Uniden, SPH 58E	15		
	Portable	Relm WHS 150	8		
	Portable	King	4		
	Frequencies		2		1 non-repeated and 1 repeated
	Repeater			1	
	Dispatching	Station, volunteer	1	1	911 dispatch.
Vehicles	Structural Engine	1978 LaFrance Type 1	1		1700 gpm at 150-psi 400-gallon tank 800-gallon master stream.
	Structural Engine	1968 LaFrance Type 2	1		Type 2 meets Type 1 minus master stream.
	Structural Engine	1972 LaFrance Type 2	1		
	Structural Engine	1975 LaFrance Type 2	1		
	Structural Engine	1978 LaFrance Type 1	1		
	Wildland Engine	1984 Ford Type 6	1		
	Wildland Engine	1991 Ford Type 6	1		
	Wildland Engine	1993 Ford Type 6	1	3	Need three Type 3 engine, 1000-gallon tank to off load at 200 gpm.
	Water Tender	1970 International Type 3 (exceeds Type 6)	1	3	Present tender is 1200-gallon with 1500 gpm off load. Needed are three Type 3 or better.
Other Equipment	Portable Pump	2 cycle year unknown	3		
	Honda transfer pump			3	
	Foam Equipment	Inductor	1		Rebuilding to type 6
	Command vehicle		None	1	
	Passenger van	10 person	None	1	Use for response and training exercises.

Table 4.8 Clearwater Fire Service

Dave Ellsworth, Chief, Lewiston, ID 83501, Phone: (208)743-9022

	Rehab bus	Personnel transport	None	1
	Electric fans		4	
	Generators			3
	Positive pressure fans			3
	Porta tank	1500 gallon	1	2
	Chain saw	Varied types	5	
	Circular saw			1

4.5.2 Rural Fire Districts

4.5.2.1 Culdesac Volunteer Fire Department

Table 4.9 Culdesac Volunteer Fire Department

Gary Gilliam, Chief, Culdesac, ID Phone: (208) 843-5483 08/27/02

Culdesac Volunteer Fire Department is a town based volunteer organization housed in the City Hall building, and is managed by the Fire Chief who reports to the Culdesac City Council. Culdesac Volunteer Fire Department responds to structural, wildland, and vehicle fires. Currently the incident capacity is one single family dwelling or one small wildland fire. It takes approximately 1 1/2 hours to prepare for the next incident.

	Item	Description	Existing	Needed	Details
Personnel	Basic Member	Basic fire fighting skills	11		Two members are qualified for National Standards in Structural and Wildland fires, one member is qualified for National Standards in Structural fires, and one member is qualified for National Standards for Wildland fires.
	Intermediate Member	Basic fire fighting skills with extra certification (Haz Mat, confined space)			
	Advanced Member	Basic fire fighting skills with extra certification and training for strategies and tactics	1		One member meets the National Standards for Structural and Wildland Fires
Training	Basic Wildland Training				
	Basic Structural Training				
	Haz Mat Education				
	First Aid Training				
Protective Equipment	Shirts			13	
	Pants			13	
	Boots	Leather		13	

Table 4.9 Culdesac Volunteer Fire Department

Gary Gilliam, Chief, Culdesac, ID Phone: (208) 843-5483 08/27/02

	Gloves			13
	Hard Hats			13
	Goggles			13
	Headlamps			13
	Fire Shelters			13
	Breathing Apparatus		7	
	Air Bottles		14	14
Hand Tools	Fire Swatters			
	Pulaski			
	Shovels			
	Back Pack Sprayer			
	Chainsaw	Stihl Farm Boss		1
Communications	Radio			8
	Base Station			1
	Repeaters			1
	Dispatch	Nez Perce County	1	
	Dispatch	Pagers		
Vehicles	4 X 4 Pickup			1
	Water Tender			1
	ATV	6 wheeled		2
	Structural Engine	Ward Lafrance 1976, 1000 gal. 1250 GPM, 1 1/2' Hose, 2 1/2" Master Stream, 2 ladders	1	
	Wildland Engine	International model 1700, 2 1/2 ton,	1	
Other Equipment	Portable Pump			1
	Foam Equipment			1
	Generator			1

4.5.2.2 Lapwai Fire Department

Table 4.10 Lapwai Fire Department

Mark Sugden, Chief, Lapwai, ID Phone: (208) 843-2212 09/02

Lapwai Fire Department is a City based volunteer organization housed in a 2 bay building with additional storage at City Hall, and is managed by the Chief who reports to the Fire Commissioner. The Fire Commissioner appointed is and responsible to the Lapwai city council. Lapwai Fire Department responds to structural, wildland, agricultural, industrial, railroad right-of-way, and grain and fertilizer fires.

	Item	Description	Existing	Needed	Details

Table 4.10 Lapwai Fire Department

Mark Sugden, Chief, Lapwai, ID Phone: (208) 843-2212 09/02

Personnel	Basic Member	Handles normal fires	3		Need Volunteer fire fighters with the ability to follow commands of senior officers, able to work in a fire area with SCBA, willing to learn pump panel operation, and 18 years of age or older.
	Intermediate Member		6		3 members are an apparatus driver or pump panel control
	Advanced Member	Red Card/ EMT advanced training	2		1 member is an apparatus driver or pump panel control
Training	Basic Wildland Training	Red Card Standards	2	9	Provided by Red Card Personnel
	Basic Structural Training				Provided by Hanford Fire School
	Haz Mat I.C.				State Fire Department
	First Aid Training	Refresher Course		11	Provided by local EMT trainers
Protective Equipment	Shirts	Turnouts	10	10	
	Pants	Turnouts	10	10	
	Boots	Leather			
	Gloves	Fire		11	
	Hard Hats	Structure	10	7	
	Goggles	Field	9	5	
	Breathing Apparatus	MSA		4	6 per unit
Hand Tools	Shovels		3	3	
	Pulaski			3	
	Pike Pole		1	2	
	Chainsaw	Homelite 18"		1	
Communications	Radio	Motorola	5	5	
	Base Station	Motorola	1		City Hall
	Base Station	Mobile	1		Pumper #2
	Base Station		1		Brush truck #1
	Repeaters	Nez Perce County	1		
	Dispatch	Nez Perce County	1		
	Dispatch	Pagers		11	
Vehicles	Sedan			1	For Commissioner
	Sport Utility Vehicle			4	3 for fire Chiefs, 1 for police
	Passenger Vans			2	Fire fighter transport
	Brush Truck	1987 Dodge D 250	1	2	Need newer
	4 X 4 Pickup			1	
	Water Truck	Potable, 3000 GPM		2	

Table 4.10 Lapwai Fire Department

Mark Sugden, Chief, Lapwai, ID Phone: (208) 843-2212 09/02

	Shop Truck	1987 Chevrolet, with tools	1		
	Ambulance	Ford	1		
	ATV	Polaris 500	1		
	Structural Engine	American LaFrance, 300 Gal. Cap., 1500 GPM Pump Capacity, 2 1/2" X 800' Hose, Hose, 20' Ladder,	1		
	Structural Engine	American LaFrance, 300 Gal. Cap., 1500 GPM Pump Capacity, 1 1/2" X 600' Hose, Hose, 8' Ladder,	1		
	Wildland Engine	Dodge D 250, 200 Gallon, Baffled	1		
	Pumper Cat	American LaFrance, 1500 GPM, 300 Gal. Cap. Baffled, 1 1/2" linen hose 700' long		1	
	Pumper Cat	American LaFrance, 1500 GPM, 300 Gal. Cap. 2 1/2" linen hose 800' long		1	
Other Equipment	Backhoe	Case 580	1		
	Portable Pump			1	
	Foam Equipment			1	
	Generator	Honda 110/220	1		
	Gas Powered Fan	Honda	1		
	Traffic Cone	Orange	10		
	Hydraulic Jack	20 ton	1		
	Manual Jack	Hi-Lift	1		

4.5.2.3 Sunnyside Fire District

Table 4.11 Sunnyside Fire District

John Willard, Chief, Orofino, ID Phone: (208) 476-3473 09/16/02

Sunnyside Fire District is County based volunteer organization housed in a 3 1/2 bay metal building and is managed by elected fire district commissioners who choose a fire chief. Sunnyside responds to structural, wildland, agricultural, and vehicle fires. Currently the incident capacity is one single family incident, and the recovery requirements are to replenish water supplies on engines and tenders.

Sunnyside Fire District has Mutual Aide Agreements with: Nez Perce Sheriff's Office, Idaho Dept. of Lands, Nez Perce Tribe, Clearwater-Potlatch Timber Protective Assoc., Evergreen Rural Fire Department, Twin Ridge Rural Fire Department

Item	Description	Existing	Needed	Details

Table 4.11 Sunnyside Fire District

John Willard, Chief, Orofino, ID Phone: (208) 476-3473 09/16/02

Personnel	Basic Member	Member has not completed "Essentials of Fire Fighting Course"	8		
	Intermediate Member	"Essentials of Fire Fighting" Course and Fire Fighting II complete	17		
	Advanced Member	Meets all national Standards (NFPA)	2	1	Need Volunteer Fire Captain - must have Fire Command Experience
Training	Basic Wildland Training			14 members	Provided by CPTPA, IDL, USFS, or North Idaho Fire Academy
	Basic Structural Training	"Essentials of Fire Fighting" Course and Fire Fighting II complete		8 Members	Provided by North Idaho Fire Academy
	Basic Agricultural Training			8 Members	
	Haz Mat Training	Refresher Course		27 members	Provided by Regional HAZMAT team
	First Aid Training	Refresher Course		27 members	Provided by Clearwater Cty. EMT training
Protective Equipment	Shirts	Nomex	20	20	
	Pants	Nomex	8	30	
	Boots	Wildland Leather		30	
	Gloves	Leather	20	20	
	Hard Hats		20	6	
	Goggles	Wildland	20	6	
	Headlamps	D-cell	12	12	
	Fire Shelters	New NFPA		30	
	Breathing Apparatus	MSA	9	6	
	Turnout Coats	Nomex	15	10	
	Turnout Pants	Nomex	15	10	
Hand Tools	Shovels			8	
	Pulaski's			8	
	McLeod's			2	
	Chainsaw	Homelite Super XL 24"	1		
	Chainsaw	McCullough 12"	1		
	Circular Saw	Stihl TS400	1		
Communications	Mobile Radios	Kenwood TK760	4		Multi-Frequency
	Hand-held Radios	Assorted	20		Multi-Frequency
	Base Station	Kenwood TK705	2		Multi-Frequency
	Base Station	Phoenix	1		

Table 4.11 Sunnyside Fire District

John Willard, Chief, Orofino, ID Phone: (208) 476-3473 09/16/02

	Dispatch	Motorola CC50	1		24 hours a day, 7 days per week
Vehicles	Sport Utility Vehicle			1	For Command and Initial Attack
	4X4 Pickup	Wildland E-91		1	Type 6, 1 ton, 250 gallon
	Water Tender	1967 Ford F-700, 24,000 GVWR, baffled spreader bar, 1200 Gal. Cap., 500 GPM Pump, 600/6" Off-Load Capacity, 5 Min. refill time/drafting capacity	1	1	Need Newer
	Water Tender	1982 Ford LTL 9000, 56,000 GVWR, Baffled Spreader Bar, 2600 Gal. Cap., 300 GPM Pump, 1000/10" Off-Load Capacity, 10 Min. refill time/drafting capacity	1	1	Need Newer
	Structural Engine	Ford F250, 10,000 GVWR, 250 Gal. Cap., 500@100 PSI Pump Cap., 1 1/2" X 800' Hose	1		
	Structural Engine	Ford FA 800, 27,500 GVWR, 750 Gal. Cap., 750@150 PSI Pump Cap., 1 1/2" X 1000' Hose, 2 1/2" X 1000' Hose, 24' Extension Ladder, 12' Roof Ladder, 10' Attic Ladder	1		
	Wildland Engine	Ford F700, 1200 Gallon, with a deck gun	1		
Other Equipment	Portable Pump	Teel 3" 300 GPM	1		
	Portable Pump	Gorman Rupp 10HP, 125 GPM	1		
	Portable Pump	Waterous Floating, 125 GPM	1		
	Foam Equipment	Siphon 1 1/2"	1		
	Foam Equipment	CAFS		1	

4.5.2.4 City of Lewiston Fire Department

Table 4.12 City of Lewiston Fire Department

Steve Cooper, Chief, Lewiston, ID Phone: (208) 743-3554 10/15/02

City of Lewiston Fire Department is a city based organization with approximately 60 members.				
Item	**Description**	**Existing**	**Needed**	**Details**

Table 4.12 City of Lewiston Fire Department

Steve Cooper, Chief, Lewiston, ID Phone: (208) 743-3554 10/15/02

Vehicles	Structural Engine	1999 HME Central States, 1250 GPM Pump, 750 Gal. Cap.	1
	Structural Engine	1992 Pierce, 1500 GPM Pump, 750 Gal. Cap.	1
	Structural Engine	1994 Pierce, 1250 GPM Pump, 1,000 Gal. Cap.	1
	Structural Engine	1984 FMC, 1250 GPM Pump, 1,000 Gal. Cap	1
	Structural Engine	1984 FMC, 1250 GPM Pump, 1,000 Gal. Cap	1
	Ladder Truck	2000 Pierce, 2000 GPM pump, 300 Gal. Cap	1
	Brush Truck	1997 Chevrolet 4X4, 230 Gal. Cap. in a slip tank, auxiliary pump capable of drafting	1
	Brush Truck	1994 Ford 4X4, 300 Gal. Cap. in a slip tank	1

4.5.2.5 Genesee City and Rural Fire Department

Table 4.13 Genesee City and Rural Fire Department

Darrell Kilgore, Chief, Genesee, ID Phone: (208) 285-0144 (H) 11/16/02

Genesee Volunteer Fire Department is a volunteer organization housed in a 2 bay building, which stores 3 vehicles per bay, and is managed by board of directors comprised of the volunteers. The City of Genesee and the Genesee Fire District provides annual funding for the organization. Genesee responds to structural, agricultural, and vehicle fires. Currently the incident capacity is two single family incidents or one large incident and recovery takes one half hour to approximately one hour.

	Item	Description	Existing	Needed	Details
Personnel	Basic Member	In-House training and equipment practice, not certified	25		
	Intermediate Member	Formal Training and certifications			Need volunteer EMTs that meet National Registry standards
	Advanced Member	Veteran and Nationally certified			Need paid or volunteer trainers for Structural, Wildland, and HazMat
Training	Basic Wildland Training				All aspects of wildland fire fighting

Table 4.13 Genesee City and Rural Fire Department

Darrell Kilgore, Chief, Genesee, ID Phone: (208) 285-0144 (H) 11/16/02

	Basic Structural Training				Any and all aspects of structural fire review and training
	HazMat Training				Need volunteers to be certified for HazMat incidences and situations.
Protective Equipment	Shirts	Nomex		25	
	Pants	Nomex		25	
	Turnouts	Full Turnout Suit	27	25	Need updated.
	Boots	Wildland Leather			
	Gloves	Leather	27	10	
	Hard Hats				
	Goggles	Wildland			
	Headlamps				
	Fire Shelters		0	2	
	Breathing Apparatus	MSA	6	6	
	Breathing Apparatus	SCBA	6	6	
Hand Tools	Shovels		15	0	
	Pulaski's		8	0	
	Fire Swatter		1	9	
	Chainsaw	1985 Homelite	1	1	
Communications	Mobile Radios	Midland FM	5		
	Handheld Radios	Motorola Radius P 1225	20		
	Base Station	Station Radio	1		
	Repeaters	Moscow Mountain	1		
	Repeaters	McGary Butte	1		
	Dispatch	Latah County 911	1		24 hours 7 days a week
Vehicles	Structural Engine	1964 International Pumper 4X4	1	1	Need newer
	Wildland Engine	1983 Chevy 1 ton Brush Truck 4X4	1	1	
	Wildland Engine	1996 International Chief Series4X4	1		Rural truck
	Wildland Engine	1975 International 4X4	1	1	Rural truck

Table 4.13 Genesee City and Rural Fire Department

Darrell Kilgore, Chief, Genesee, ID Phone: (208) 285-0144 (H) 11/16/02

	Ambulance	2004 Ford E350 Type III	1		Due for delivery in April 2005
	Water Truck		1		Available from local chemical/fertilizer companies in Genesee
	Dozer		1		Available from Roach Construction in Genesee
	Agricultural Tractors		1		Available from farmers
	Back hoe		1		Available from City of Genesee
	Utility Vehicles	4X4	1		Personal vehicles are available
	Excavators with Thumb		1		Available from Roach Construction in Genesee
Other Equipment	Smoke Ejector	1999 Honda	1		
	Smoke Ejector	1965 Electric	1		
	Smoke Ejector	1968 Electric	1		
	Foam Equipment	Fire Foam 103	1	1	Mounted on truck
	Extrication	Holmatro Combi-Cutter Spreader	1		
	Portable Generator	4500 watt	1		
	Scene Lights		2	2	
	Air bags for lifting vehicles and debris		2	2	

4.5.2.6 Juliaetta Volunteer Fire Department

Table 4.14 Juliaetta Volunteer Fire Department

Mike McGee, Chief, Juliaetta, ID Phone: (208) 276-7022 (H) 11/21/02

Juliaetta Volunteer Fire Department is an all volunteer department of the City of Juliaetta. The response service area is the corporate City Limits of Juliaetta. The Juliaetta VFD responds to residential, commercial and industrial structural fires, motor vehicle accidents, HAZMAT Incidences and assists J-K Ambulance at their request. Current capacity is one incident at this time. Recovery time is approximately ½ to one hour.

	Item	Description	Existing	Needed	Details
Personnel	Basic Member		5	15	Fire Fighters Essential Training to

Table 4.14 Juliaetta Volunteer Fire Department

Mike McGee, Chief, Juliaetta, ID Phone: (208) 276-7022 (H) 11/21/02

					achieve Fire Fighter Certification
	Intermediate Member		1	15	
	Advanced Member		1	15	
Training	Basic Wildland Training		0	15	
	Basic Structural Training		5	15	
	Incident Command (ICS)		5	15	
	Vehicle Extrication		5	15	
	HazMat		1	15	
	Basic Safety Training		1	15	
	Advanced Safety Training		5	15	
	FirstAid	Refresher Course	3	15	
Protective Equipment	Bunker Gear	Structural	2	15	Balance of current bunker
	NFPA 1991				Gear purchased in 1982, in need of replacement
	Headlamps		0	15	In need of replacement
	Bunker boots	Structural	15	15	In need of replacement
	Helmets	Structural	2	15	Balanced purchased in 1982
	1 piece jump suits		0	15	
	Photo Ionization Detector (PID)		1	1	
	SCBA's	MSA	8	16	With space bottles
	Gloves	Leather	20	10	
	Nomex hoods		12	15	Existing hoods are short style; need long style
	Hard Hats	Wildland	0	15	
	Survivair		16	16	Near end of 15 year service life
	Goggles	Wildland	10	4	
	Fire Shelters		12		
Hand Tools	Shovels	#2 round nose, #2 flat	1	10	

Table 4.14 Juliaetta Volunteer Fire Department

Mike McGee, Chief, Juliaetta, ID Phone: (208) 276-7022 (H) 11/21/02

		nose			
	Pulaski's		2	15	
	Fire Swatters		0	5	
	Garbage Rake		0	2	
	Signal Whistles		0	15	
	Chainsaw	2004 Stihl 029	1	2	
	Fire Axes		3	0	
	McLeod's		0	1	
Communications	Mobile Radios	Motorola Radius CM 300	2	5	
	Portable Radio	Motorola T110 6 channel	4	0	Nearing end of service life
	Base Station	Motorola Radius CM 300	1	1	
	Pagers	Motorola minitor IV	10	15	
	Cell Phones		0	15	
	Bull Horn		0	1	
	County-wide Tactical Channel	Monitored and dispatched by Latah County	0		
	Laptop Computers	Wireless	0	1	
	Repeater		0	0	
	Dispatch	Latah County Sheriffs Department	1	0	911 System
Vehicles	Structural Engine	1956 Seagrave w/ 500 gallon tank, 1250 gpm pump	1	2	Current vehicle is 49 years old, parts are no longer available
	Utility Vehicle	Dodge 1985 4x4 150 pickup	1	1	Out of service due to lack of funding for repairs
	Command vehicle		0	1	
	Quick Response Engine		0	1	
	Brush Truck		0	1	

Table 4.14 Juliaetta Volunteer Fire Department

Mike McGee, Chief, Juliaetta, ID Phone: (208) 276-7022 (H) 11/21/02

Facility	Fire Station		1	1	Current facility inadequate due to small size (24x30 ft), no storage
Other Equipment	Float pump		0	2	
	1-3/4" structural hose		450'	600'	
	2-1/2" fire hose		2200'	2400'	Existing hose dates back to 1941
	Generator	Honda 3500 Watt minimum	0	1	
	Akron Foam Nozzles-induction system		0	1	
	Hallingon Tool		0	1	
	Scene lighting		0	many	
	Smoke ejector		1	0	
	Portable Pump		0	1	
	Power Cord		0	300'	

4.5.2.7 Kendrick Volunteer Fire Department

Table 4.15 Kendrick Volunteer Fire Department

Val Norris, Chief, Kendrick, ID Phone: (208) 289-3066 (H) 1/31/05

Kendrick Volunteer Fire Department is a volunteer organization housed in a 4 bay building furnished by the city of Kendrick. It stores 1 fire vehicle and is managed by the fire department volunteers. The City of Kendrick provides annual funding for the organization. Kendrick responds to structural, agricultural, and vehicle fires in the town of Kendrick.

	Item	Description	Existing	Needed	Details
Personnel	Basic Member	In-house training and equipment practice, not certified	5	4	Additional members
	Intermediate Member	Formal training and certification	7	5	Remaining members need to be certified
	Advanced Member	Veteran and Nationally certified	0	1	Need a member of the department to be certified to train members in Fire Essentials.
Training	Basic Wildland Training	Wildland Basic Course	2	10	All aspects of wildland fire fighting.
	Basic Structural Training		7	5	Any and all aspects of structural fire review and training.
	HazMat		3	9	Need volunteers to be

Table 4.15 Kendrick Volunteer Fire Department

Val Norris, Chief, Kendrick, ID Phone: (208) 289-3066 (H) 1/31/05

					certified for the HazMat incidences and situations.
Protective Equipment	Helmets	NFPA Compliance	12	4	
	Wildland Shirts	Nomex	0	12	Perimeter wildland fire fighting
	Wildland Pants	Nomex	0	12	Perimeter Wildland fire fighting
	Flashlights	PPE	15	4	Need 4 large scene flashlights
	Turnouts	Full Turnout Suits	12	4	
	Gloves	Leather	15	5	
	Goggles	Wildland	0	12	
	Wildland Boots	Leather	0	12	
	Breathing Apparatus	SCBA	6 Scotts	6 Survivair	
	Air Bottles		32	20	
	Headlamps		0	12	
	Hardhats		1	11	
	Boots	PPE	15	4	
Hand Tools	Pulaski		6	4	
	Fire Swatter		0	4	
	Halligan Tool		0	1	Forcible Entry
	Piercing, Nozzle		0	1	
	Pike Pole		1	1	Additional equipment
	Chainsaw	2002 65 cc Stihl	1	1	
	Shovels		6	6	
Communications	Mobile Radio	Motorola 1225	1	1	
	Handheld Radio	3 Kenwood, 3 Motorola	6	12	Upgrade to Motorola 1250 w/ alpha numeric
	Pagers	Motorolas	5	7	Equip all personnel with pagers
	Repeaters	J-K & Moscow Mountain	1		
	Base Stations	Station radio and truck radio	2	0	
	Dispatch	Latah 911			24 hours a day, 7 days a week
Vehicles	Structural Engine	1974 American LaFrance 1250 gallon pump	1	1	

Table 4.15 Kendrick Volunteer Fire Department
Val Norris, Chief, Kendrick, ID Phone: (208) 289-3066 (H) 1/31/05

	Structural Engine	1000 gallon	0	1	Need newer backup and to meet water flows for the High School and other facilities in town.
	Dump Truck		1		Available from City of Kendrick
	Back hoe		1		Available from City of Kendrick
	Water Trucks		0	0	Available from local chemical/fertilizer companies in Kendrick
	Quick Response Vehicle		0	1	Quicker Response and use for extrication and wildland around the perimeter of the town
	Utility Vehicle	4x4	1		Personal vehicles available
Other Equipment	Positive Pressure Ventilation Fan		1	0	
	Water Curtain		0	2	To cool exposures
	Monitor	500 gpm	0	1	Cooling LP tanks in town and cooling exposures
	Portable generator	3000 Watt Honda Generator	1	0	
	Scene Lights		0	2 sets	Scene Lighting needed for fire truck
	Air bags		0	2	Lifting debris and assisting in extrication

4.5.2.8 Big Canyon Fire Department

J.K. O'Connell
Asst. Chief BCFD
jko@idaho.net

Big Canyon Fire District trucks, equipment and personnel info.

- 1968 Kaiser 6x6 tender, turbo diesel, 1300 gal. tank, w/ Ford 4 cyl. ohv pump engine. Federal Govt. truck on loan from IDL.
- 1977 Mack 6x6 engine, diesel, 350 gal. tank w/ PTO driven 750GPM pump. Ex Federal Govt. crash truck, on loan from IDL.
- 1974 Walter 4x4 engine, 871 Detroit diesel, 1500 gal. tank w/ 471 Detroit diesel powered 1200 GPM pump. Cab mounted 300 gpm master stream (monitor) and detachable rear monitor. Ex crash truck. Owned by BCFD.

- 1990 Ford 1 ton 4x4, 4 door, diesel, 8hp gas driven pump, 250 gal. tank. Owned by BCFD.
- 1981 Chevy 1 ton 4x4, 2 door, 454 gas, dually, w/ 8hp gas driven pump, 300 gal. tank. Owned by BCFD.
- 1979 Dodge 3/4 ton 4x4, 2 door, "Brush Buggy", V8 gas, w/ 8hp gas driven pump, 250 gal. tank. Owned by BCFD.

All trucks are equipped with at least 2 SCBA with extra tanks, Pulaski's, shovels, jacks, chains, 36" bolt cutters, first aid kits & water. All trucks except the Walter have chains for winter use. BCFD has one working "trash" pump and one working generator.

Personnel: Approx. 30 volunteer members at any given time with 20+ showing up when the siren goes off, if they can hear it. At least 15 members currently have or recently had yellow or red cards. At least 10 members have advanced firefighting and EMT training or experience, or are certified at some level as firefighters. We have at least two Registered Nurses associated with the fire dept.

Currently BCFD has one station located in Peck with 3 bays and storage. BCFD is in the process of trying to add another station at or near the Medley subdivision on Woodhaven Dr. BCFD did have a truck stationed there till recently but because of dispatching problems we brought the truck back to Peck.

Needs: BCFD needs radios. There is no way to communicate with member firefighters except by "phone tree". During a recent structure fire the phone service and electricity went out just as people started getting called. During a grass fire, firefighters couldn't communicate with the chief or each other. We had no idea where the fire was heading and were on our own positioning equipment and personnel. The chain of command is confounded without communications.

We also need safety equipment. Boots, turnouts, Nomex, gloves, modern lighting, straps, and hardware. Anything we have is well used hand-me-downs from Clearwater County, IDL or CPTPA. There has been no equipment assistance from Nez Perce County in the past. The ex-NPC Sheriff did give us the Walter fire truck, right before election time. We later found out they wanted to get rid of it as they thought it was dangerous and needed too much work as nothing on it worked properly. We get no help with grants. We had to beg and finally threaten the powers that be to get dispatched.

4.6 Issues Facing Nez Perce County Fire Protection

4.6.1 Creation of Waha Rural Fire District

Currently, the community of Waha and homes in the surrounding area are unprotected by any formal structural fire protection district. The Clearwater Fire Service provides selective structural and wildland fire protection within a 10 mile radius of the Lewiston. They are a state ISO rated organization funded by subscription. The Idaho Department of Lands and the Nez Perce Tribe also provide wildland fire protection; however, response time for emergency personnel from Lewiston, Lapwai, or Craigmont would be relatively slow. Due to the combination of timber and rangelands, a wildfire could potentially spread to residential areas before suppression resources arrived. Communities and private landowners need to take action to create a Lewiston Rural Fire District to include the Waha area in order to provide fire protection resources and personnel to the citizens of Waha and the surrounding area.

4.6.2 Creation of Clearwater Canyon Fire District

Currently, structures in the Clearwater Canyon from Arrow to the Big Canyon Fire District, which includes the communities of Myrtle and Lenore, are unprotected by any formal structural fire protection district. The Idaho Department of Lands and the Nez Perce Tribe provide wildland fire protection; however, response time for emergency personnel from Deary, Craigmont, and Kamiah would be relatively slow. Due to xeric nature, steep canyon slopes, and the combination of timber and rangelands, a wildfire could potentially spread to residential areas before suppression resources arrived. Communities and private landowners need to take action to create a new fire district in order to provide fire protection resources and personnel to the residents of this part of the Clearwater Canyon, Lenore, and Myrtle.

4.7 Current Nez Perce County Fire Mitigation Projects

4.7.1 Bureau of Land Management Projects

Table 4.16. Proposed Mitigation Projects from the BLM in Nez Perce County.

Area Name	Treatment Type
Madden Creek	Prescribed Burn
Billy Creek	Weed Spraying
Corral Creek	Prescribed Burn (Mech)
Cave Gulch	Weeds
Eagle Creek	Weeds
Eagle Creek	Weeds
Harpers Bend	Prescribed Burn (Mech)

Chapter 5: Treatment Recommendations

5 Overview

Critical to the implementation of this Wildfire Mitigation Plan will be the identification of, and implementation of, an integrated schedule of treatments targeted at achieving an elimination of the lives lost, and reduction in structures destroyed, infrastructure compromised, and unique ecosystems damaged that serve to sustain the way-of-life and economy of Nez Perce County and the region. Since there are many land management agencies and thousands of private landowners in Nez Perce County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all ownerships.

Nez Perce County encourages the philosophy of instilling disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

The federal land management agencies in Nez Perce County, specifically the Nez Perce Tribe and the Bureau of Land Management, are participants in this planning process and have contributed to its development. Where available, their schedule of land treatments have been considered in this planning process to better facilitate a correlation between their identified planning efforts and the efforts of Nez Perce County.

All risk assessments were made based on the conditions existing during 2004-05, thus, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

As part of the Policy of Nez Perce County in relation to this planning document, this entire **Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Nez Perce County Commissioners, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be prepared (or arranged) by the Chairman of the County Commissioners, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Idaho Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the Wildfire Mitigation Plan. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

5.1 Annual Prioritization of Activities

The annual prioritization process will include a special emphasis on cost-benefit analysis review. The process will reflect that a key component in funding decision is a determination that the project will provide an equivalent or more in benefits over the life of the project when compared with the costs. Projects will be administered by local jurisdictions with overall coordination provided by the Nez Perce County Emergency Management Coordinator.

Nez Perce County Commissioners and the elected officials of all jurisdictions will evaluate opportunities and establish their own unique priorities to accomplish mitigation activities where existing funds and resources are available and there is community interest in implementing mitigation measures. If no federal funding is used in these situations, the prioritization process may be less formal and not tied to a strict benefit-cost model, but rather to a willingness to

simply implement hazard mitigation. Often the types of projects that Nez Perce County can afford to do on their own are in relation to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. Nez Perce County will consider all pre-disaster mitigation proposals brought before the county commissioners by county department heads, city officials, fire districts and local civic groups.

When federal or state funding is available for hazard mitigation, there are usually requirements that establish a rigorous benefit-cost analysis as a predominate criteria in establishing project priorities. The county will understand the basic federal grant program criteria which will drive the identification, selection, and funding of the most competitive and worthy mitigation projects. FEMA's three grant programs (the post-disaster Hazard Mitigation Grant Program, the pre-disaster Flood Mitigation Assistance and Pre-Disaster Mitigation grant programs) that offer federal mitigation funding to state and local governments all include the benefit-cost and repetitive loss selection criteria.

The prioritization of projects will occur annually and be facilitated by the Nez Perce County Emergency Services Director to include the County Commissioner's Office, City Mayors and Councils, Fire District Chiefs and Commissioners, agency representatives (USFS, BLM, State Lands, etc.). The prioritization of projects will be based on the selection of projects which create a balanced approach to pre-disaster mitigation which recognizes the hierarchy of treating in order (highest first):

- People and Structures
- Infrastructure
- Local and Regional Economy
- Traditional Way of Life
- Ecosystems

While developing and analyzing projects based this hierarchy, specific projects will be evaluated for their intrinsic benefit/cost analysis results, overall benefit to the public good, opportunities for leveraging results from other projects in the county, and coordinating with multi-county activities resulting in specific risk reduction within Nez Perce County. The analysis process will include summaries as appropriate for each project, but will include benefit / cost analysis results, which will be one of the criteria for project selection. Projects with a negative benefit / cost analysis result will only be considered in specific circumstances. As a guideline, the decision will be to further consider investments having a B/C Ratio greater than or equal to 1, and reject projects that have a B/C Ratio less than 1. When multiple projects are considered, decision makers will rank by B/C ratio and give the highest ranking projects priority under this criteria. Other criteria will influence final project ranking.

5.2 Possible Fire Mitigation Activities

As part of the implementation of fire mitigation activities in Nez Perce County, a variety of management tools may be used. Management tools include but are not limited to the following:

- Homeowner and landowner education
- Building code changes for structures and infrastructure in the WUI
- Home site defensible zone through fuels modification
- Community defensible zone fuels alteration

- Access improvements
- Access creation
- Emergency response enhancements (training, equipment, locating new fire stations, new fire districts, merging existing districts)
- Regional land management recommendations for private, state, and federal landowners

Maintaining private property rights will continue to be one of the guiding principles of this plan's implementation. Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.

5.3 WUI Safety & Policy

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related in nature and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

As part of the Policy of Nez Perce County in relation to this planning document, this entire **Wildland-Urban Interface Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Nez Perce County Commissioners, open to the public, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be approved by the Chairman of the County Commissioners, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Idaho Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the WUI Wildfire Mitigation Plan (signatures by the cooperators would be collected at the Chairman's discretion). Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

Prioritization of activities recommended in this plan should be made by the Nez Perce County Commissioners consistent with the recommendations made in Chapter 1 of this document. During the annual review of this plan, reprioritization can be justified in response to changing conditions and funding opportunities.

5.3.1 Existing Practices That Should Continue

Nez Perce County currently is implementing many projects and activities that, in their absence, could lead to increased wildland fire loss potential. By enumerating some of them here, it is the desire of the authors to point out successful activities.

- Existing rural addressing efforts have aided emergency responses well.
- The current 911 service in the county is an excellent service that is currently dispatched out of Nez Perce County. Activities that build on the rural addressing and current emergency services to develop an Enhanced 911 service would serve the county well.

5.3.2 Proposed Activities

Table 5.1. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.1.a: Amend existing building codes to apply equally to new single housing construction as it does to sub-divisions. Make sure existing policy is comprehensive to wildland fire risks.	**Protection of people and structures** by applying a standard of road widths, access, and building regulations suitable to insure new homes can be protected while minimizing risks to firefighters. (defensible space, roads and access management, water systems, building codes, signage, and maintenance of private forest and range lands)	**County Commissioners** in cooperation with Rural Fire Districts and Planning and Zoning.	• Year 1 debate and adoption of revised code (2005). • Review adequacy of changes annually, make changes as needed.
5.1.b: Develop County policy concerning building materials used in high-risk WUI areas on existing structures and new construction	**Protection of people and structures** by improving the ability of emergency response personnel to respond to threatened homes in high-risk areas.	**County Commissioners Office** in cooperation with Rural Fire Departments	**Year 1 (2005) activity:** Consider and develop policy to address construction materials for homes and businesses located in high wildfire risk areas. Specifically, a County policy concerning wooden roofing materials and flammable siding, especially where juxtaposed near heavy wildland fuels.
5.1.c: Adoption of International Fire Code and creation of a County Fire Warden/Chief position that would lead the Nez Perce County Fire Department and inspect sites for compliance to the International Fire Code as well as enforce the mandates of the Code.	**Protection of people and structures** by improving the ability of emergency services personnel to safely and effectively respond to homes.	**Planning and Zoning** with County Commissioners Office and Rural Fire Departments.	**Year 1 (2005) activity:** Consider and develop policy to enforce the International Fire Code regulations already adopted by the State of Idaho and seek funding to create a County Fire Warden/Chief position.
5.1.d: Develop a formal WUI Advisory Committee to advise County Commissioners on WUI Issues and Treatments	**Protection of people and structures** by improving the ability of decision makers to make informed decisions about wildfire issues.	**County Commissioners Office**	**Year 1 (2005) activity:** Formalize a committee, its membership and service decided on by the County Commissioners, to collaborate on WUI issues within Nez Perce County. Members potentially to include land management organizations and companies, private landowners, and fire protection personnel.
5.1.e: Develop a County Commissioner's Office	**Protection of people and structures** by improving	**County Commissioners Office**	**Ongoing activity:** Support grant applications as

Table 5.1. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
policy to support the applications for grant monies for projects resulting from recommendations in this plan.	the ability of residents and organizations to implement sometimes costly projects.		requested in a manner consistent with applications from residents and organizations in Nez Perce County.

5.4 People and Structures

The protection of people and structures will be tied together closely as the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire. The other incident is a fire fighter who suffers the loss of life during the combating of a fire. Many of the recommendations in this section will define a set of criteria for implementation while others will be rather specific in extent and application.

Many of the recommendations in this section involve education and increasing awareness of the residents of Nez Perce County. These recommendations stem from a variety of factors including items that became obvious during the analysis of the public surveys, discussions during public meetings, and observations about choices made by residents living in the Wildland-Urban Interface. Over and over, a common theme was present that pointed to a situation of landowners not recognizing risk factors:

- Homeowners in the public mail survey ranked their home site wildfire risk factors significantly lower than a random sample of home rankings completed by fire mitigation specialists.
- Fire District personnel pointed to numerous examples of inadequate access to homes of people who believe they have adequate ingress.
- Discussions with the general public indicated an awareness of wildland fire risk, but they could not specifically identify risk factors.
- Over half of the respondents to the public mail survey indicated (53%) that they want to participate in educational opportunities focused on the WUI and what they can do to increase their home's chances of surviving a wildfire.

In addition to those items enumerated in Table 5.1, residents and policy makers of Nez Perce County should recognize certain factors that exist today, that in their absence would lead to an increase in the risk factors associated with wildland fires in the WUI of Nez Perce County. These items listed below should be encouraged, acknowledged, and recognized for their contributions to the reduction of wildland fire risks:

- **Livestock Grazing** in and around the communities of Nez Perce County has led to a reduction of many of the fine fuels that would have been found in and around the communities and in the wildlands of Nez Perce County. Domestic livestock not only eat these grasses, forbs, and shrubs, but also trample certain fuels to the ground where decomposition rates may increase. Livestock ranchers tend their stock, placing resource professionals into the forests and rangelands of the area where they may observe ignitions, or potentially risky activities. There are ample opportunities throughout the county to increase grazing. This could contribute to the economic output of the county

as well as reduce the fuel loading. Livestock grazing in this region should be encouraged into the future as a low cost, positive tool of wildfire mitigation in the Wildland-Urban Interface and in the wildlands.

- **Forest Management** in Nez Perce County by the Idaho Department of Lands and the Potlatch Corporation and many of the private and other industrial forestland owners in the region has led to a significant reduction of wildland fuels where they are closest to homes and infrastructure. In addition, forest resource professionals managing these lands and the lands of the private owners and federal agencies are generally trained in wildfire protection and recognize risk factors when they occur. One of the reasons that Nez Perce County forestlands have not been impacted by wildland fires to a greater degree historically, is the presence and activities related to active forest management.
- **Agriculture** is a significant component of Nez Perce County's economy. Much of the county is occupied with the production of agricultural crops. The original conversion of these lands to agriculture from range and forestland, was targeted at the most productive soils and juxtaposition to infrastructure. Many of these productive ecosystems were consequently also at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today, is that much of the rangeland historically prone to frequent fires, has been converted to agriculture, which is at a much lower risk than prior to its conversion. The preservation of a viable agricultural economy in Nez Perce County is integral to the continued management of wildfire risk in this region.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.a: Youth and Adult Wildfire Educational Programs	**Protect people and structures** by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk	Cooperative effort including: • University of Idaho Cooperative Extension • Idaho Department of Lands • Nez Perce Tribal, and State and Private Forestry Offices • Bureau of Land Management • Local School Districts • Local Fire Departments	Evaluate effectiveness of currently funded County education programs. If possible, use existing educational program materials and staffing. These programs may need reformatted. Formal needs assessment should be responsibility of University of Idaho Cooperative Extension faculty and include the development of an integrated WUI educational series by year 3 (2006). Costs initially to be funded through existing budgets for these activities to be followed with grant monies to continue the programs as identified in the formal needs assessment. Detailed information regarding home defensible space requirements is contained on the FireWise CD, which can be purchased and personalized by the County. The CD costs $2,500.
5.2.b: Wildfire risk assessments of homes in identified communities	**Protect people and structures** by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments**. Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	• **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners. • There are approximately 15,285 housing units in Nez Perce County, many of these structures would benefit from a home site inspection. • **Action Item:** Secure funding and contract to complete the inspections during years 1 & 2 (2005-06) • Home site inspection reports and estimated budget for each home site's treatments will be a requirement to receive funding for treatments through grants.
			• Agatha – 75 homes, 90% need Home defensibility inspections, cost estimate of $6,750 • Arrow – 64 homes, 90% need Home defensibility inspections, cost estimate of $5,760 • Culdesac – 258 homes, 40% need Home defensibility inspections, cost estimate of $10,320 • Gifford – 44 homes, 40% need Home defensibility inspections, cost estimate of $1,760 • Lapwai – 446 homes, 40% need Home defensibility inspections, cost estimate of $17,840 • Leland – 72 homes, 25% need Home defensibility inspections, cost estimate of $1,800 • Lenore – 137 homes, 80% need Home defensibility inspections, cost estimate of $10,960 • Lewiston – 120 homes (outside of city limits), 25% need Home defensibility inspections, cost estimate of $3,000 • Lookout – 50 homes, 90% need Home defensibility inspections, cost estimate of $4,500 • Melrose – 45 homes, 60% need Home defensibility inspections, cost estimate of $2,700 • Peck – 263 homes, 90% need Home defensibility inspections, cost estimate of $23,670 • Slickpoo – 66 homes, 70% need Home defensibility inspections, cost estimate of $4,620

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
	• Southwick – 140 homes, 25% need Home defensibility inspections, cost estimate of $3,500 • Spalding – 118 homes, 50% need Home defensibility inspections, cost estimate of $5,900 • Summit – 30 homes, 60% need Home defensibility inspections, cost estimate of $1,800 • Sweetwater – 205 homes, 60% need Home defensibility inspections, cost estimate of $12,300 • Waha – 140 homes, 100% need Home defensibility inspections, cost estimate of $14,000 • Webb – 37 homes, 90% need Home defensibility inspections, cost estimate of $3,330 • Other Rural Homes – 4,092 homes, 30% need Home defensibility inspections, cost estimate of $122,760 • **Total Cost Estimate for this item: $257,270**		
5.2.c: Home Site WUI Treatments	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Nez Perce County	**County Commissioners** in cooperation with Fire Mitigation Consulting company and Rural Fire Districts *Complete concurrently with 5.4.b.*	• Actual funding level will be based on the outcomes of the home site assessments and cost estimates • **Estimate** that treatments will cost approximately $800 per home site for a defensible space of roughly 150'. • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).
	• Agatha – 75 homes, 90% need Home defensibility projects, cost estimate of $54,000 • Arrow – 64 homes, 90% need Home defensibility projects, cost estimate of $46,080 • Culdesac – 258 homes, 40% need Home defensibility projects, cost estimate of $82,560 • Gifford – 44 homes, 40% need Home defensibility projects, cost estimate of $14,080 • Lapwai – 446 homes, 40% need Home defensibility projects, cost estimate of $142,720 • Leland – 72 homes, 25% need Home defensibility projects, cost estimate of $14,400 • Lenore – 137 homes, 80% need Home defensibility projects, cost estimate of $87,680 • Lewiston – 120 homes (outside of city limits), 25% need Home defensibility projects, cost estimate of $24,000 • Lookout – 50 homes, 90% need Home defensibility projects, cost estimate of $36,000 • Melrose – 45 homes, 60% need Home defensibility projects, cost estimate of $21,600 • Peck – 263 homes, 90% need Home defensibility projects, cost estimate of $189,360 • Slickpoo – 66 homes, 70% need Home defensibility projects, cost estimate of $36,960 • Southwick – 140 homes, 25% need Home defensibility projects, cost estimate of $28,000 • Spalding – 118 homes, 50% need Home defensibility projects, cost estimate of $47,200 • Summit – 30 homes, 60% need Home defensibility projects, cost estimate of $14,400 • Sweetwater – 205 homes, 60% need Home defensibility projects, cost estimate of $98,400		

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
	• Waha – 140 homes, 100% need Home defensibility projects, cost estimate of $112,000 • Webb – 37 homes, 90% need Home defensibility projects, cost estimate of $26,640 • Other Rural Homes – 4,092 homes, 30% need Home defensibility projects, cost estimate of $ 982,080 • **Total Cost Estimate for this item: $ 2,058,160**		
5.2.d: Community Defensible Zone WUI Treatments	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding high risk communities in the WUI of Nez Perce County	**County Commissioners** in cooperation with Fire Mitigation Consultants and Rural Fire Districts	• Actual funding level will be based on the outcomes of the home site assessments and cost estimates. • **Years 2-5 (2005-09):** Treat high risk wildland fuels from home site defensible space treatments (5.4.c) to an area extending 400 feet to 750 feet beyond home defensible spaces, where steep slopes and high accumulations of risky fuels exist. Should link together home treatment areas. Treatments target high risk concentrations of fuels and not 100% of the area identified. To be completed only after or during the creation of home defensible spaces have been implemented. • **Communities and areas to target:** Waha, Soldiers Meadow, Gifford, Peck, Lenore, Culdesac, Myrtle, Lewiston, Kendrick, Juliaetta, Cottonwood Creek, and Lapwai. • Approximate average cost on a per structure basis is $750-$1,500 depending on extent of home defensibility site treatments, for a cost estimate of $1.0 million. Couple this cost with the home defensibility space costs of $1.3 million. The number of structures to benefit from these treatments include both homes and businesses (assessed value of $20,942,402). The **average B/C Ratio for these treatments combined in Nez Perce County is 70:1**. Actual B/C ration by community will be variable.
5.2.e: Maintenance of Home Site WUI Treatments	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Nez Perce County	**County Commissioners Office** in cooperation with Rural Fire Departments and local home owners	• Home site defensibility treatments must be maintained periodically to sustain benefits of the initial treatments. • Each site should be assessed 5 years following initial treatment • Estimated re-inspection cost will be $50 per home site on all sites initially treated or recommended for future inspections ($65,000) • Follow-up inspection reports with treatments as recommended years 5 through 10.
5.2.f: Re-entry of Home Site WUI Treatments	**Protect people, structures, and increase**	**County Commissioners Office** in cooperation with Rural Fire	• Re-entry treatments will be needed periodically to maintain the benefits of the initial WUI home treatments. Each re-entry

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
	fire fighter safety by reducing the risk factors surrounding homes in the WUI of Nez Perce County	Departments and local home owners	schedule should be based on the initial inspection report recommendations, observations, and changes in local conditions. Generally occurs every 5-10 years.
5.2.g: Access Improvements of bridges, cattle guards, and limiting road surfaces. Tie information to emergency 911 system.	**Protection of people, structures, infrastructure, and economy** by improving access for residents and fire fighting personnel in the event of a wildfire. Reduces the risk of a road failure that leads to the isolation of people or the limitation of emergency vehicle and personnel access during an emergency.	**County Roads and Bridges Department** in cooperation with BLM, State of Idaho (Lands and Transportation), and forestland or rangeland owners as well as County Commissioners and Emergency Dispatch.	• **Year 1 (2005):** Update existing assessment of travel surfaces, bridges, and cattle guards in Nez Perce County as to location. Secure funding for implementation of this project (grants). Provide assessment information to Emergency 911 Dispatch, so information can be forwarded to first responders during an emergency. Update information system as necessary. • **Year 2 (2006):** Conduct engineering assessment of limiting weight restrictions for all surfaces (e.g., bridge weight load maximums). Estimate cost of $275,000 which might be shared between County, BLM, State, and private based on landownership associated with road locations. • **Year 2 (2007):** Post weight restriction signs on all crossings, copy information to rural fire districts and wildland fire protection agencies in affected areas. Estimate cost at roughly $25-$30,000 for signs and posting. • **Year 3 (2008):** Identify limiting road surfaces in need of improvements to support wildland fire fighting vehicles and other emergency equipment. Develop plan for improving limiting surfaces including budgets, timing, and resources to be protected for prioritization of projects (benefit/cost ratio analysis). Create budget based on full assessment.
5.2.h: Access Improvements for communities of Waha, Soldiers Meadow, Cottonwood Creek, Peck, and Gifford.	**Protection of people, structures, infrastructure, and economy** by improving access for residents and fire fighting personnel in the event of a wildfire. Allows for alternative escape route when the primary access is compromised.	**County Roads and Bridges Department** in cooperation with BLM, State of Idaho (Lands and Transportation), industrial forestland owners.	• **Year 1 (2005):** Update existing assessment of Soldiers Meadow Road, Waha Road, Peck Ridge Grade, and County Route P3 as to limiting areas of road and bridges. Secure funding for implementation of this project based on ownership and use. • **Year 2 (2006):** Secure funding and implement projects to improve limiting access along this road to facilitate broader range of vehicles using this route as an emergency route. No estimate of costs until priorities are set and options identified.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.i: Access Improvements through road-side fuels management. [Waha Road, Soldiers Meadow Road, Central Grade, and County Route P3]	**Protection of people, structures, infrastructure, and economy** by improving access for residents and fire fighting personnel in the event of a wildfire. Allows for a road based defensible area that can be linked to a terrain based defensible areas.	**County Roads and Bridges Department** in cooperation with BLM, State of Idaho (Lands and Transportation), and forestland or rangeland owners.	• **Year 1 (2005):** Update existing assessment of roads in Nez Perce County as to location. Secure funding for implementation of this project (grants). • **Year 2 (2006):** Specifically address access issues listed in column one, plus recreation areas, and others identified in assessment. Target 100' on downhill side of roads and 75' on uphill side for estimated cost of $15,000 per mile of road treated. If 350 miles of roadway are prioritized for treatment (est.) the cost would amount to $ 5,250,000. **B/C Ratio of 31:1 is achieved**, but is highly variable. Further, the total value of structures in the county is not "protected" by this type of treatment. • **Year 3 (2007):** Secure funding and implement projects to treat road-side fuels.

5.5 Infrastructure

Significant infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to Nez Perce County. These networks are by definition a part of the Wildland-Urban Interface in the protection of people, structures, **infrastructure**, and unique ecosystems. Without supporting infrastructure a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and on-the-ground activities.

Communication Infrastructure: This component of the WUI seems to be diversified across the county with multiple source and destination points, and a spread-out support network. Although site specific treatments will impact local networks directly, little needs done to insure the system's viability.

The radio communication network does not provide adequate communications coverage or connectivity for the rural parts of Nez Perce County. The only Fire/EMS repeater for rural departments is on Lewiston Ridge. The connectivity provided by this single repeater is less than 75% of the County, resulting in numerous radio dead zones, including the populated areas of Culdesac and Peck. This degrades response time and requires emergency response units to drive to a radio active site before they can communicate with dispatch, such as to request mutual aid.

Transportation Infrastructure (road and rail networks): This component of the WUI has some potential limitations in Nez Perce County. The hub of Nez Perce County's transportation network is located in Lewiston (as the County Seat and industrial nucleus for northern Idaho). Specific infrastructure components have been discussed in this plan.

There is currently only one active railroad in Nez Perce County. The First Subdivision of the Camas Prairie Railroad makes a weekly trip down the Clearwater River hauling logs and other materials between Kamiah and the Potlatch Corporation mill in Lewiston. There are a number of curves and sidings where a train may be prone to create sparks, eject hot stack carbon, or blow hot brake shoes, any one of which can easily ignite the light fuels along the railroad corridor. Although there is some potential, this right-of-way has not been a significant source of fire ignitions and is therefore not a priority for fire mitigation treatment in Nez Perce County.

Ignitions along highways are significant and should be addressed as part of the implementation of this plan. Various alternatives from herbicides to intensive livestock grazing coupled with mechanical treatments, have been suggested. As part of the multi-agency WUI team proposed in the previous section, these corridors should be further evaluated with alternatives implemented. A variety of approaches will be appropriate depending on the landowner, fuels present, and other factors. These ignitions are substantial and the potential risk of lives in the area is significant.

Many roads in the county have limiting characteristics, such as steep grades, narrow travel surfaces, sharp turning radii, low load limit bridges and cattle guards, and heavy accumulations of fuels adjacent to, and overtopping some roads. Some of these road surfaces access remote forestland and rangeland areas. While their improvements will facilitate access in the case of a wildfire, they are not necessarily the priority for treatments in the county.

Roads that have these inferior characteristics and access homes and businesses are the priority for improvements in the county. Specific recommendations for these roads are enumerated in Table 5.3.

Energy Transport Supply Systems (gas and power lines): (Nez Perce County - Appendix I) A number of power lines crisscross Nez Perce County. Unfortunately, many of these power lines cross over forestland ecosystems. When fires ignite in these vegetation types, the fires tend to be slower moving and burn at relatively high intensities. Additionally, there is a potential for high temperatures and low humidity with high winds to produce enough heat and smoke to threaten power line stability. Most power line corridors have been cleared of vegetation both near the wires and from the ground below. Observations across the county of these high tension power lines lead to the conclusion that current conditions coupled with urban developments have mitigated this potential substantially. It is the recommendation of this Wildfire Mitigation Plan that this situation be evaluated annually and monitored but that treatments not be specifically targeted at this time. The use of these areas as "fire breaks" should be evaluated further, especially in light of the treatments enumerated in this plan (e.g., intensive livestock grazing, mechanical treatments, and herbicide treatments).

Water Supply: In many of Idaho's communities, water is derived from surface flow that is treated and piped to homes and businesses. When wildfires burn a region, they threaten these watersheds by the removal of vegetation, creation of ash and sediment. As such, watersheds should be afforded the highest level of protection from catastrophic wildfire impacts. In Nez Perce County, water is supplied to many homes by single home or multiple home wells.

5.5.1 Proposed Activities

Table 5.3. Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.3.a: Post FEMA "Emergency Evacuation Route" signs along the identified Primary and secondary access routes in the county.	**Protection of people and structures** by informing residents and visitors of **significant infrastructure** in the county that will be maintained in the case of an emergency.	**County Commissioners** in cooperation with Rural Fire Districts and Roads Department.	• Purchase of signs (2005). • Posting roads and make information available to residents of the importance of Emergency Routes
5.3.b: Fuels mitigation of the FEMA "Emergency Evacuation Routes" in the county to insure these routes can be maintained in the case of an emergency.	**Protection of people and structures** by providing residents and visitors with ingress and egress that can be maintained during an emergency.	**County Commissioners** in cooperation with Rural Fire Districts and Roads Department.	• Full assessment of road defensibility and ownership participation (2005). • Implementation of projects (linked to item 5.2.g, 5.2.h, and 5.2.i.

5.6 Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland fire fighting districts in Nez Perce County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies in the WUI and are fully supported by the planning committee.

Specific reoccurring themes of needed resources and capabilities include:

- Improved radio capabilities within each district and for mutual aid operations
- Retention and recruitment of volunteers

- Training and development of rural firefighters in structure and wildland fire
- Incorporation of communities into current fire districts or the formation of a new district specifically for these residents.

The implementation of each issue will rely on either the isolated efforts of the fire districts or a concerted effort by the county to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve county wide equity. However, the Clearwater RC&D may be an organization uniquely suited to work with all of the districts in Nez Perce County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the RC&D is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.4.a: Enhance radio availability in each district, link into existing dispatch, and improve range within the region, update to new digital, narrow band frequency adopted by feds and state.	**Protection of people and structures** by direct fire fighting capability enhancements.	**Idaho Department of Lands** in cooperation with rural and wildland fire districts and County Commissioners	• **Year 1 (2005):** Summarize existing two-way radio capabilities and limitations. Identify opportunities for radio repeater towers located in the region for multi-county benefits. Upgrade existing equipment and locate funding opportunities. • **Year 2 (2006):** Acquire and install upgrades and new equipment as needed. Complete feasibility study for repeater locations. • **Year 2-3 (2006-07):** Acquire equipment, land, and personnel to erect repeaters on designated sites.
5.4.b: Retention of Volunteer Fire Fighters	**Protection of people and structures** by direct fire fighting capability enhancements.	**Rural and Wildland Fire Districts** working with broad base of county citizenry to identify options, determine plan of action, and implement it.	• 5 Year Planning Horizon, extended planning time frame • Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers • **Year 1 (2005):** Develop incentives program and implement it.

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.4.c: Identify areas lacking a sufficient water supply and develop publicly accessible fill sites.	**Protection of people and structures** by direct fire fighting capability enhancements.	**County Commissioners and** rural and wildland fire districts	• Identify populated areas lacking sufficient water supplies and develop project plans to develop fill or helicopter dipping sites. • Implement project plans.
5.4.d: Facility, land, business plan and basic supplies for new Lewiston Rural Fire Protection, which will include the Waha community.	**Protection of people and structures** by direct fire fighting capability enhancements.	**Clearwater Resource Conservation and Development Council** in cooperation with Commissioners and fire districts.	• Estimate of Costs: ○ $500,000 • **2 Year Planning Horizon**
5.4.e: Wildland engine for Nez Perce County Fire Department.	**Protection of people and structures** by direct fire fighting capability enhancements.	**Nez Perce County Fire Department**	• **Year 1 (2004):** Verify stated need still exists, develop budget, and locate funding or equipment (surplus) sources. • **Year 1 or 2 (2004-05):** Acquire and deliver needed equipment to stations based on prioritization by need and funding awards
5.4.f: Facility, land, business plan and basic supplies for new Clearwater Canyon Fire Protection District.	**Protection of people and structures** by direct fire fighting capability enhancements.	**Clearwater Resource Conservation and Development Council** in cooperation with Commissioners and fire districts.	• Estimate of Costs: ○ $500,000 • **2 Year Planning Horizon**
5.4.g: Increased training and capabilities of fire fighters	**Protection of people and structures** by direct fire fighting capability enhancements.	**Rural and Wildland Fire Districts** working with the **BLM, IDL, and USFS** for wildland training opportunities and with the **State Fire Marshall's Office** for structural fire fighting training.	• **Year 1 (2005):** Develop a multi-county training schedule that extends 2 or 3 years in advance (continuously). • Identify funding and resources needed to carry out training opportunities and sources to acquire. • Year 1 (2005): Begin implementing training opportunities for volunteers.
5.4.h: Facility, land, business plan and basic supplies for new station of the Big Canyon Fire Department near Medley subdivision on Woodhaven Dr.	**Protection of people and structures** by direct fire fighting capability enhancements.	**Clearwater Resource Conservation and Development Council** in cooperation with Commissioners and fire districts.	• Estimate of Costs: ○ $50,000 • **2 Year Planning Horizon**
5.4.i: safety equipment	**Protection of people and**	**Clearwater Resource**	• Complete an inventory

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
for all RFDs in Nez Perce County.	**structures** by direct fire fighting capability enhancements.	**Conservation and Development Council** in cooperation with Commissioners and fire districts.	of all supplies held by the RFDs (boots, turnouts, Nomex, gloves, modern lighting, straps, and hardware), and complete a needs assessment matching expected replacement schedule. • Develop county-wide re-supply process for needed equipment.

5.7 Regional Land Management Recommendations

In section 5.4 of this plan, reference was given to the role that forestry, grazing and agriculture have in promoting wildfire mitigation services through active management. Nez Perce County is dominated by wide expanses of forest and rangelands intermixed with communities and rural houses.

Wildfires will continue to ignite and burn fuels and homes depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy range and forestland conditions, and promotes the use of these natural resources (consumptive and non-consumptive) will insure that these lands have value to society and the local region. We encourage the Bureau of Land Management, the Idaho Department of Lands, the Nez Perce Tribe, Industrial land owners, private land owners, and all other landowners in the region to actively administer their Wildland-Urban Interface lands in a manner consistent with the policy of reducing fuels and risks in this zone.

Chapter 6: Supporting Information

6

6.1 List of Tables

6.2 List of Figures

6.3 List of Preparers

The following personnel participated in the formulation, compilation, editing, and analysis of alternatives for this assessment.

Table 6.1. List of Preparers

Name	Affiliation	Role
William E. Schlosser, Ph.D.	Northwest Management, Inc.	**Lead Author,** Project Manager, GIS Analyst, Natural Resource Economist, Hazard Mitigation Specialist
Tom Richards, B.S.	Northwest Management, Inc.	Project Co-Manager, Fire Mitigation, Silviculture Systems
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Tera Duman, B.S.	Northwest Management, Inc.	Natural Resource Manager, Fire Control Technician
John A. Erixson, M.S.	Northwest Management, Inc.	Range Management, Fire Specialist
Dennis S. Thomas	Northwest Management, Inc.	Fire & Fuels Specialist, Prescribed Burning Manager
Vaiden E. Bloch, M.S.	Northwest Management, Inc.	GIS Analyst
Greg Bassler, M.S.	Northwest Management, Inc.	Roads Engineer, Timber Sale Layout & Harvest Manager

6.4 Signature Pages

This **Nez Perce County Wildland Urban Interface Wildfire Mitigation Plan** has been developed in cooperation and collaboration with the representatives of the following organizations, agencies, and individuals.

6.4.1 Representatives of Nez Perce County Government

This Wildfire Mitigation Plan and all of its components identified herein were adopted formally through a resolution of the Board of County Commissioners as of 28 March 2005, resolution number **2005-03-053**, recorded in the official record of the Nez Perce County Commissioners.

3-28-05

By: Ron Wittman, Chairman
Nez Perce County Commissioner — Date

3/28/05

By: J. R. Van Tassel
Nez Perce County Commissioner — Date

3/28/05

By: Douglas Zenner
Nez Perce County Commissioner — Date

4/05/05

By: Mel Johnson
Disaster Services Coordinator — Date

8/25/05

By: Kevin Poole
Nez Perce County Highway District — Date

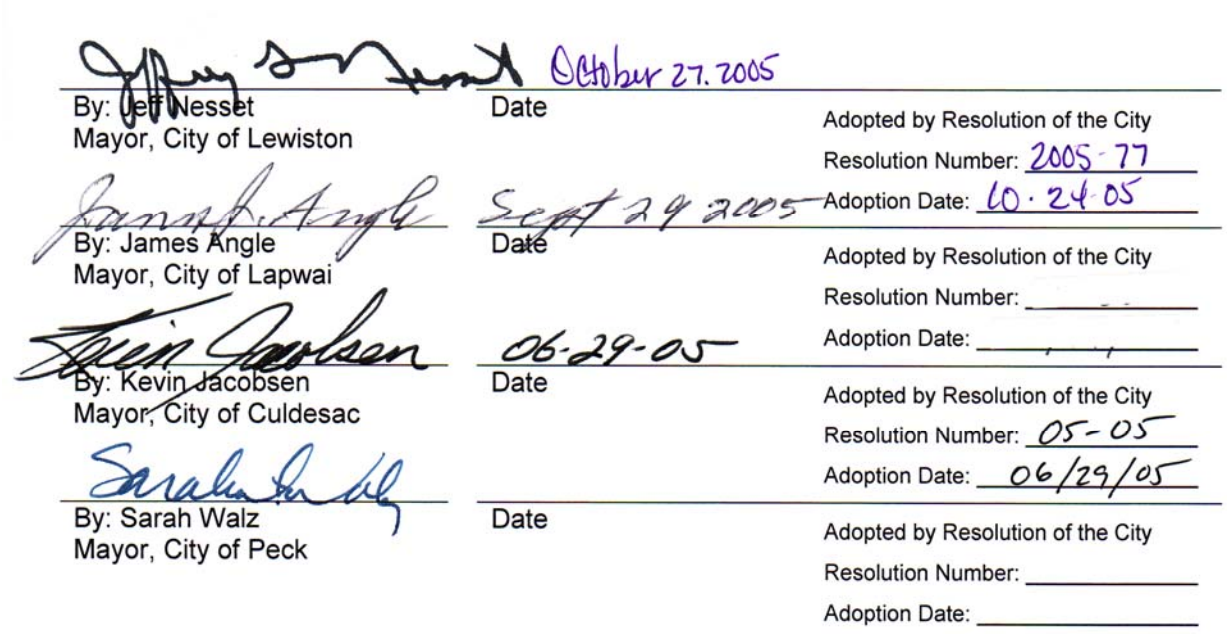
04/6/2005

By: Jim Dorian
Nez Perce County Sheriff — Date

9/28/05

By: Dan Anderson
Nez Perce County Assessor — Date

6.4.2 Representatives of City Government in Nez Perce County



By: Jeff Nesset
Mayor, City of Lewiston

October 27, 2005
Date

Adopted by Resolution of the City
Resolution Number: 2005-77
Adoption Date: 10-24-05

By: James Angle
Mayor, City of Lapwai

Sept 29 2005
Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

By: Kevin Jacobsen
Mayor, City of Culdesac

06-29-05
Date

Adopted by Resolution of the City
Resolution Number: 05-05
Adoption Date: 06/29/05

By: Sarah Walz
Mayor, City of Peck

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

6.4.3 Representatives of City and Rural Fire Districts in Nez Perce County

Randall Moss 7-7-05

By: Randy Moss
Big Canyon Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

Gary Gilliam 4/1/2005

By: Gary Gilliam
Culdesac Rural Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

Steve Cooper 10-7-05

By: Steve Cooper
Lewiston Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

Mark Sugden 9/29/05

By: Mark Sugden
Lapwai Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

8/4/05

By: Val Norris
Kendrick Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

Mike McGee 08-04-05

By: Mike McGee
Juliaetta Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

John Willard 4/27/05

By: John Willard
Sunnyside Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

Darrell Kilgore 10/17/05

By: Darrell Kilgore
Genesee Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

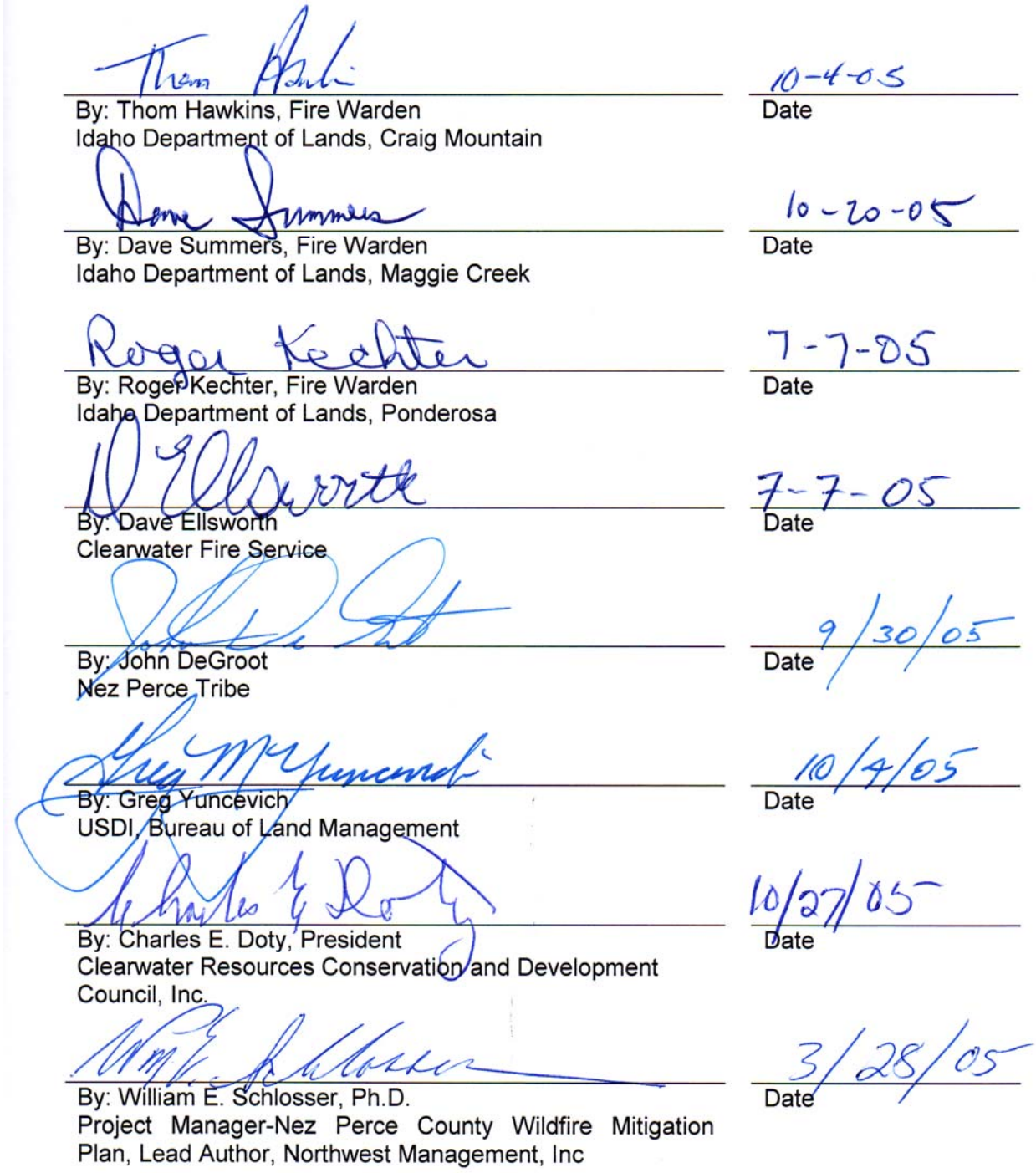
Ron Hall 3-28-05

By: Ron Hall
Nez Perce County Fire Department

Date

Adopted by Resolution of the City
Resolution Number: _____
Adoption Date: _____

6.4.4 Representatives of Community Organizations, Federal, and State Agencies



By: Thom Hawkins, Fire Warden
Idaho Department of Lands, Craig Mountain
Date: 10-4-05

By: Dave Summers, Fire Warden
Idaho Department of Lands, Maggie Creek
Date: 10-20-05

By: Roger Kechter, Fire Warden
Idaho Department of Lands, Ponderosa
Date: 7-7-05

By: Dave Ellsworth
Clearwater Fire Service
Date: 7-7-05

By: John DeGroot
Nez Perce Tribe
Date: 9/30/05

By: Greg Yuncevich
USDI, Bureau of Land Management
Date: 10/4/05

By: Charles E. Doty, President
Clearwater Resources Conservation and Development Council, Inc.
Date: 10/27/05

By: William E. Schlosser, Ph.D.
Project Manager-Nez Perce County Wildfire Mitigation Plan, Lead Author, Northwest Management, Inc
Date: 3/28/05

Glossary of Terms

Anadromous - Fish species that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce (Salmon & Steelhead).

Appropriate Management Response - Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Biological Assessment - Information document prepared by or under the direction of the Federal agency in compliance with U.S. Fish and Wildlife standards. The document analyzes potential effects of the proposed action on listed and proposed threatened and endangered species and proposed critical habitat that may be present in the action area.

Backfiring - When attack is indirect, intentionally setting fire to fuels inside the control line to contain a rapidly spreading fire. Backfiring provides a wide defense perimeter, and may be further employed to change the force of the convection column.

Blackline - Denotes a condition where the fireline has been established by removal of vegetation by burning.

Burning Out - When attack is direct, intentionally setting fire to fuels inside the control line to strengthen the line. Burning out is almost always done by the crew boss as a part of line construction; the control line is considered incomplete unless there is no fuel between the fire and the line.

Canyon Grassland - Ecological community in which the prevailing or characteristic plants are grasses and similar plants extending from the canyon rim to the rivers edge.

Confine - Confinement is the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Contingency Plans: Provides for the timely recognition of approaching critical fire situations and for timely decisions establishing priorities to resolve those situations.

Control Line - An inclusive term for all constructed or natural fire barriers and treated fire edge used to control a fire.

Crew - An organized group of firefighters under the leadership of a crew boss or other designated official.

Crown Fire - A fire that advances from top to top of trees or shrubs more or less independently of the surface fire. Sometimes crown fires are classed as either running or dependent, to distinguish the degree of independence from the surface fire.

Disturbance - An event which affects the successional development of a plant community (examples: fire, insects, windthrow, timber harvest).

Disturbed Grassland - Grassland dominated by noxious weeds and other exotic species. Greater than 30% exotic cover.

Diversity - The relative distribution and abundance of different plant and animal communities and species within an area.

Drainage Order - Systematic ordering of the net work of stream branches, (e.g., each non-branching channel segment is designated a first order stream, streams which only receive first order segments are termed second order streams).

Duff - The partially decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles, and leaves.

Ecosystem - An interacting system of interdependent organisms and the physical set of conditions upon which they are dependent and by which they are influenced.

Ecosystem Stability - The ability of the ecosystem to maintain or return to its steady state after an external interference.

Ecotone - The area influenced by the transition between plant communities or between successional stages or vegetative conditions within a plant community.

Energy Release Component - The Energy Release Component is defined as the potential available energy per square foot of flaming fire at the head of the fire and is expressed in units of BTUs per square foot.

Equivalent Clearcut Area (ECA) - An indicator of watershed condition, which is calculated from the total amount of crown removal that has occurred from harvesting, road building, and other activities based on the current state of vegetative recovery.

Exotic Plant Species - Plant species that are introduced and not native to the area.

Fire Adapted Ecosystem - An arrangement of populations that have made long-term genetic changes in response to the presence of fire in the environment.

Fire Behavior - The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Forecast - Fire behavior predictions prepared for each shift by a fire behavior analysis to meet planning needs of fire overhead organization. The forecast interprets fire calculations made, describes expected fire behavior by areas of the fire, with special emphasis on personnel safety, and identifies hazards due to fire for ground and aircraft activities.

Fire Behavior Prediction Model - A set of mathematical equations that can be used to predict certain aspects of fire behavior when provided with an assessment of fuel and environmental conditions.

Fire Danger - A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected.

Fire Ecology - The scientific study of fire's effects on the environment, the interrelationships of plants, and the animals that live in such habitats.

Fire Exclusion - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

Fire Intensity Level - The rate of heat release (BTU/second) per unit of fire front. Four foot flame lengths or less are generally associated with low intensity burns and four to six foot flame lengths generally correspond to "moderate" intensity fire effects. High intensity flame lengths are usually greater than eight feet and pose multiple control problems.

Fire Prone Landscapes – The expression of an area's propensity to burn in a wildfire based on common denominators such as plant cover type, canopy closure, aspect, slope, road density, stream density, wind patterns, position on the hillside, and other factors.

Fireline - A loose term for any cleared strip used in control of a fire. That portion of a control line from which flammable materials have been removed by scraping or digging down to the mineral soil.

Fire Management - The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision making, and other land management activities.

Fire Management Plan (FMP) - A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. This plan is supplemented by operational procedures such as preparedness, preplanned dispatch, burn plans, and prevention. The fire implementation schedule that documents the fire management program in the approved forest plan alternative.

Fire Management Unit (FMU) - Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMU's are delineated in FMP's. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Occurrence - The number of wildland fires started in a given area over a given period of time. (Usually expressed as number per million acres.)

Fire Prevention - An active program in conjunction with other agencies to protect human life, prevent modification, of the ecosystem by human-caused wildfires, and prevent damage to cultural resources or physical facilities. Activities directed at reducing fire occurrence, including public education, law enforcement, personal contact, and reduction of fire risks and hazards.

Fire Regime - The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long-interval, high-intensity (stand replacement) fires.

Fire Retardant - Any substance that by chemical or physical action reduces flareability of combustibles.

Fire Return Interval - The number of years between two successive fires documented in a designated area.

Fire Risk - The potential that a wildfire will start and spread rapidly as determined by the presence and activities of causative agents.

Fire Severity - The effects of fire on resources displayed in terms of benefit or loss.

Foothills Grassland - Grass and forb co-dominated dry meadows and ridges. Principle habitat type series: bluebunch wheatgrass and Idaho fescue.

Fuel - The materials which are burned in a fire; duff, litter, grass, dead branchwood, snags, logs, etc.

Fuel Break - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Fuel Loading - Amount of dead fuel present on a particular site at a given time; the percentage of it available for combustion changes with the season.

Fuel Model - Characterization of the different types of wildland fuels (trees, brush, grass, etc.) and their arrangement, used to predict fire behavior.

Fuel Type - An identifiable association of fuel elements of distinctive species; form, size, arrangement, or other characteristics, that will cause a predictable rate of fire spread or difficulty of control, under specified weather conditions.

Fuels Management - Manipulation or reduction of fuels to meet protection and management objectives, while preserving and enhancing environmental quality.

Gap Analysis Program (GAP) - Regional assessments of the conservation status of native vertebrate species and natural land cover types and to facilitate the application of this information to land management activities. This is accomplished through the following five objectives:

1. Map the land cover of the United States
2. Map predicted distributions of vertebrate species for the U.S.
3. Document the representation of vertebrate species and land cover types in areas managed for the long-term maintenance of biodiversity
4. Provide this information to the public and those entities charged with land use research, policy, planning, and management
5. Build institutional cooperation in the application of this information to state and regional management activities

Habitat - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Heavy Fuels - Fuels of a large diameter, such as snags, logs, and large limbwood, which ignite and are consumed more slowly than flash fuels.

Hydrologic Unit Code - A coding system developed by the U. S. Geological Service to identify geographic boundaries of watersheds of various sizes.

Hydrophobic - Resistance to wetting exhibited by some soils, also called water repellency. The phenomena may occur naturally or may be fire-induced. It may be determined by water drop penetration time, equilibrium liquid-contact angles, solid-air surface tension indices, or the characterization of dynamic wetting angles during infiltration.

Human-Caused Fires - Refers to fires ignited accidentally (from campfires or smoking) and by arsonists; does not include fires ignited intentionally by fire management personnel to fulfill approved, documented management objectives (prescribed fires).

Intensity - The rate of heat energy released during combustion per unit length of fire edge.

Inversion - Atmospheric condition in which temperature increases with altitude.

Ladder Fuels - Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Landsat Imagery - Land remote sensing, the collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites.

Landscape - All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

Lethal - Relating to or causing death; extremely harmful.

Lethal Fires - A descriptor of fire response and effect in forested ecosystems of high-severity or severe fire that burns through the overstory and understory. These fires typically consume large woody surface fuels and may consume the entire duff layer, essentially destroying the stand.

Litter - The top layer of the forest floor composed of loose debris, including dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Maximum Manageable Area - The boundary beyond which fire spread is completely unacceptable.

Metavolcanic - Volcanic rock that has undergone changes due to pressure and temperature.

Minimum Impact Suppression Strategy (MIST) - "Light on the Land." Use of minimum amount of forces necessary to effectively achieve the fire management protection objectives consistent with land and resource management objectives. It implies a greater sensitivity to the impacts of suppression tactics and their long-term effects when determining how to implement an appropriate suppression response.

Mitigation - Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Monitoring Team - Two or more individuals sent to a fire to observe, measure, and report its behavior, its effect on resources, and its adherence to or deviation from its prescription.

National Environmental Policy Act (NEPA) - This act declared a national policy to encourage productive and enjoyable harmony between humans and their environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and will stimulate the health and welfare of humankind; to enrich the understanding of important ecological systems and natural resources; and to establish a Council on Environmental Quality.

National Fire Management Analysis System (NFMAS) - The fire management analysis process, which provides input to forest planning and forest and regional fire program development and budgeting.

Native - Indigenous; living naturally within a given area.

Natural Ignition - A wildland fire ignited by a natural event such as lightning or volcanoes.

Noncommercial Thinning - Thinning by fire or mechanical methods of precommercial or commercial size timber, without recovering value, to meet MFP standards relating to the protection/enhancement of adjacent forest or other resource values.

Notice of Availability - A notice of Availability published in the Federal Register stating that an EIS has been prepared and is available for review and comment (for draft) and identifying where copies are available.

Notice of Intent - A notice of Intent published in the Federal Register stating that an EIS will be prepared and considered. This notice will describe the proposed action and possible alternatives, the proposed scoping process, and the name and address of whom to contact concerning questions about the proposed action and EIS.

Noxious Weeds - Rapidly spreading plants that have been designated "noxious" by law which can cause a variety of major ecological impacts to both agricultural and wild lands.

Planned Ignition - A wildland fire ignited by management actions to meet specific objectives.

Prescribed Fire - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescription - A set of measurable criteria that guides the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Programmatic Biological Assessment - Assesses the effects of the fire management programs on Federally listed species, not the individual projects that are implemented under these programs. A determination of effect on listed species is made for the programs, which is a valid assessment of the potential effects of the projects completed under these programs, if the projects are consistent with the design criteria and monitoring and reporting requirement contained in the project description and summaries.

Reburn - Subsequent burning of an area in which fire has previously burned but has left flareable light that ignites when burning conditions are more favorable.

Riparian Habitat Conservation Areas (RHCA) - Portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris, and nutrient delivery systems.

Riparian Management Objectives (RMO) - Quantifiable measures of stream and streamside conditions that define good fish habitat and serve as indicators against which attainment or progress toward attainment of goals will be measured.

Road Density - The volume of roads in a given area (mile/square mile).

Scoping - Identifying at an early stage the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrowing the scope of the environmental analysis accordingly.

Seral - Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition.

Serotinous - Storage of coniferous seeds in closed cones in the canopy of the tree. Serotinous cones of lodgepole pine do not open until subjected to temperatures of 113 to 122 degrees Fahrenheit causing the melting of the resin bond that seals the cone scales.

Stand Replacing Fire - A fire that kills most or all of a stand.

Sub-basin - A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th - field Hydrologic Unit Code.

Surface Fire - Fire which moves through duff, litter, woody dead and down, and standing shrubs, as opposed to a crown fire.

Watershed - The region draining into a river, river system, or body of water.

Wetline - Denotes a condition where the fireline has been established by wetting down the vegetation.

Wildland Fire - Any nonstructure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Implementation Plan (WFIP) - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

Wildland Fire Situation Analysis (WFSA) - A decision making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

Wildland Fire Use - The management of naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use", which is a broader term encompassing more than just wildland fires.

Wildland Fire Use for Resource Benefit (WFURB) - A wildland fire ignited by a natural process (lightning), under specific conditions, relating to an acceptable range of fire behavior and managed to achieve specific resource objectives.

6.5 Literature Cited

Agee, J.K. 1993. Fire ecology of the Pacific Northwest forests. Washington: Island Press.

Agee, J.K. 1998. The Landscape Ecology of western Forest Fire Regimes. Northwest Science, Vol. 72, Special Issue 1998.

Anderson, H. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service, Intermountain Forest and Range Experiment Station. INT-GTR-122. 22 pp.

Barrett, J.W. 1979. Silviculture of ponderosa pine in the Pacific Northwest: the state of our knowledge. USDA Forest Service, General Technical Report PNW-97. Pacific Northwest Forest and Range Experiment Station, Portland, OR. 106 p.

Brown, J.K. 1995. Fire regimes and their relevance to ecosystem management. Pages 171-178 *In* Proceedings of Society of American Foresters National Convention, Sept. 18-22, 1994, Anchorage, AK. Society of American Foresters, Wash. DC.

Beukema, S.J., D.C. Greenough, C.E. Robinson, W.A. Kurtz, E.D. Reinhardt, N.L. Crookston, J.K. Brown, C.C. Hardy, and A.R. Stage. 1997. An Introduction to the Fire and Fuels Extension to FVS. In: Teck, R., Moeur, and Adams. Proceedings of the Forest Vegetation Simulator Conference, 1997 February 3-7, Fort Collins, Co. Gen. Tech. Rep. INT-373. Ogden UT:USDA Forest Service , Intermountain Research Station.

Dillman, D.A. 1978. Mail and Telephone Surveys: The Total Design Method. Hoboken: John Wiley & Sons, Incorporated. 344 p.

Fiedler, Carl E., Charles E. Keegan III, Chris W. Woodall, Todd A. Morgan, Steve H. Robertson, John T. Chmelik. 2001. A STRATEGIC ASSESSMENT OF FIRE HAZARD IN MONTANA. Report submitted to the Joint Fire Sciences Program, September 29, 2001. Pp. 39.

Final Environmental Impact Statement North-Kennedy Cottonwood stewardship Project Emmett Ranger District, Boise National Forest March 2003.

Graham, W.G. and L.J. Campbell. 1995. Groundwater Resources of Idaho. Idaho Department of Water Resources, Boise, ID. GIS Data.

Hammond, C.; Hall, D.; Miller, S.; Swetik, P. 1992. Level 1 stability analysis (LISA) documentation for version 2.0 USDA, Forest Service. General Technical Report INT-285. Intermountain Research Station, Ogden, UT.

Hann, W.J., Bunnell, D.L. 2001. Fire and land management planning and implementation across multiple scales. Int. J. Wildland Fire. 10:389-403.

Hardy, C.C., Schmidt, K.M., Menakis, J.M., Samson, N.R. 2001. Spatial data for national fire planning and fuel management. International Journal of Wildland Fire 10:353-372.

Harris, C., P.S. Cook, and J. O'Laughlin. 2003. Forest Resource-Based Economic Development in Idaho: Analysis of Concepts, Resource Management Policies, and Community Effects. Policy Analysis Group, University of Idaho, College of Natural Resources, Report № 22. Pp 82.

Holsapple, L.J., Snell, K. 1996. Wildfire and prescribed fire scenarios in the Columbia River Basin: relationship to particulate matter and visibility. In: Keane, R.E., Jones, J.L., Riley, L.S., Hann, W.J., tech. eds. Compilation of administrative reports: multi-scale landscape dynamics in the Basin and portions of the Klammath and Great basins. On file with: U. S. Department of Agriculture, Forest Service, Department of Interior, Bureau of Land

Management; Interior Columbia Basin Ecosystem Management Project, 112 E. Poplar, Walla Walla, WA 99362.

Homer, C.G. 1998. Idaho/western Wyoming landcover classification report and metadata. Department of Geography and Earth Resources. Utah State University. Logan, UT 84322-9635. chomer@gis.usu.edu

Huff, M.H., Ottmar, R.D., Alvarado, E., et al. 1995. Historical and current forest landscapes in eastern Oregon and Washington. Part II: Linking vegetation characteristics to potential fire behavior and related smoke production. Gen. Tech. Rep. PNW-GTR-355. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 43p. (Everett, Richard L., team leader; Eastside forest health assessment; Hessburg, Paul F., science team leader and tech. ed., Volume III: assessment.).

IDEQ (Idaho Department of Environmental Quality). 2003. Rules of the Department of Environmental Quality, IDAPA 58.01.02, "Water Quality Standards and Wastewater Treatment Requirements". Idaho Administrative Code (3-20-97), IDAPA 58.01.02, Boise, ID.

Johnson, C.G.; Clausnitzer, R.R.; Mehringer, P.J.; Oliver, C.D. 1994. Biotic and Abiotic Processes of Eastside Ecosytems: the Effects of Management on Plant and Community Ecology, and on Stand and Landscape Vegetation Dynamics. Gen. Tech. Report PNW-GTR-322. USDA-Forest Service. PNW Research Station. Portland, Oregon. 722pp.

Johnson, C.G. 1998. Vegetation Response after Wildfires in National Forests of Northeastern Oregon. 128 pp.

Levinson, D.H. 2002. Montana/Idaho Airshed Group; Operating Guide. Montana / Idaho Airshed Group, Missoula, MT 59808

Louks, B. 2001. Air Quality PM 10 Air Quality Monitoring Point Source Emissions; Point site locations of DEQ/EPA Air monitoring locations with Monitoring type and Pollutant. Idaho Department of Environmental Quality. Feb. 2001. As GIS Data set. Boise, Id.

McCoy, L., K. Close, J. Dunchrack, S. Husari, and B. Jackson. 2001. May 6 –24, 2001. Cerro Grande Fire Behavior Narrative.

MacDonald, L. H.; Smart, A.W.; and Wissmar, R.C. 1991. Monitoring guidelines to evaluate effects of forestry activities on streams in the Pacific Northwest and Alaska. USEPARegion 10 Report No. 910/9-91-001.

Mill Creek Watershed Assessment Emmett Ranger Districts, Boise National Forest May 2003

National Interagency Fire Center. 2003. Information posted on the Agency's Internet web site at http://www.nifc.gov/

National Register of Historic Places. 2003. Internet web site listings for Nez Perce County, Idaho. On the Internet at www.nationalregisterofhistoricalplaces.com

Norton, P. 2002. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment, June 20, 2002. Fish and Wildlife Service, Bear Valley National Wildlife Refuge.

Ottmar, Roger D.; Alvarado, E.; Hessburg, P.F.; [and others]. 1996. Historical and current forest and range landscapes in the interior Columbia River basin and portions of the Klammath and Great basins. Part III: Linking vegetation patterns to potential smoke production and fire behavior. Draft report. On file with: U.S. Department of Agriculture, Forest Service;

U.S. Department of interior, Bureau of Land management; Interior Columbia Basin Ecosystem Management project, 112 E. Poplar, Walla Walla, WA.

Quigley, T. and S. Arbelbide (Tech. Editors). 1997. An assessment of Ecosystem Components in the Interior Columbia Basin. Pacific Northwest Research Station, Walla Walla, WA. GTR-405. pp. 372, 460, 462, 480-486, 855-869.

Quigley, T.M., R.A. Gravenmier, R.T. Graham, tech. eds. 2001. Interior Columbia Basin Ecosystem Management Project: project data. Station Misc. Portland, OR. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Redmond, R.L. 1997. Mapping existing vegetation and land cover across western Montana and Northern Idaho. Wildlife Spatial Analysis Lab. Montana Cooperative Fish and Wildlife Research Unit. University of Montana, Missoula, MT 59812.

Schlosser, W.E., V.P. Corrao, D. Thomas. 2002. Shoshone County Wildland Urban Interface Fire Mitigation Plan, Final Report. Northwest Management, Inc., Moscow, ID.

Schmidt, K.M., Menakis, J.P. Hardy, C.C., Hann, W.J., Bunnell, D.L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. General Technical Report, RMRS-GTR-87, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Scott, H.S. 1998. Fuel reduction in residential and scenic forests: a comparison of three treatments in western Montana ponderosa pine stand. Res. Pap. RMRS-RP-5. Ogden, UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 19 p.

Steele, R.; Arno, S.F.; and Geier-Hayes, K. 1986. Wildfire patterns change in Central Idaho's ponderosa pine-Douglas-fir forest.

Swanson, F.J. 1978. Fire and geomorphic processes; in Fire Regimes and Ecosystem Properties. USDA Forest Service Gen. Tech. Rep. WO. 26 pp.

Thompson, R.A., P.H. Skabelund, N.C. Kulesza, E.N. Dean. 1973. Soil - Hydrologic Reconnaissance. New Meadows Ranger District, Payette National Forest. 242 pp.

USDA. 1999. Salmon River Canyon Project Draft Environmental Statement. USDA Forest Service. Nez Perce National Forest.

USDA-Forest Service (United States Department of Agriculture, Forest Service). 2000. Incorporating Air Quality Effects of Wildland Fire Management into Forest Plan Revisions – A Desk Guide. April 2000. - Draft

USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: http://www.fs.fed.us/r3/sfe/fire/urbanint.html

Vogl, R.J. 1979. Some basic principles of grassland fire management. Environmental Management 3(1):51-57, 1979.

Wright, H.A. and A.W. Bailey. 1980. Fire ecology and prescribed burning in the Great Plains – A research review. United States Department of Agriculture, Forest Service, Intermountain Forest Range Experiment Station, Ogden, Utah. General Technical Report. INT-77.

Wright, H. A. and Bailey, A.W. 1982. Fire ecology: United States and Southern Canada. John Wiley and Sons, Inc. 501 pp.

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